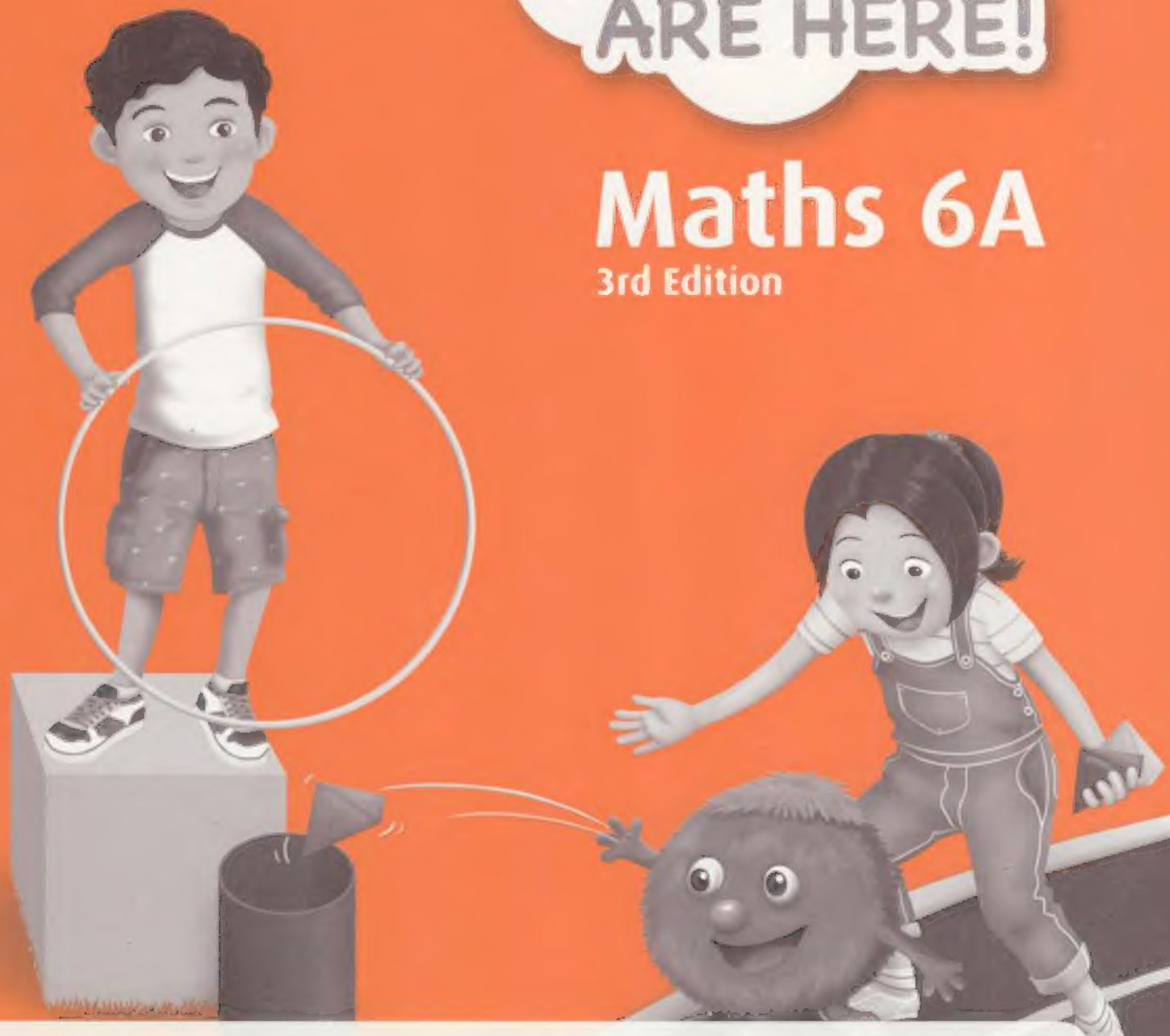
Marshall Cavendish Education

Workbook

MY PALS ARE HERE!

Maths 6A

3rd Edition



Name: _____ Class: _____

Dr Fong Ho Kheong • Gan Kee Soon • Chelvi Ramakrishnan

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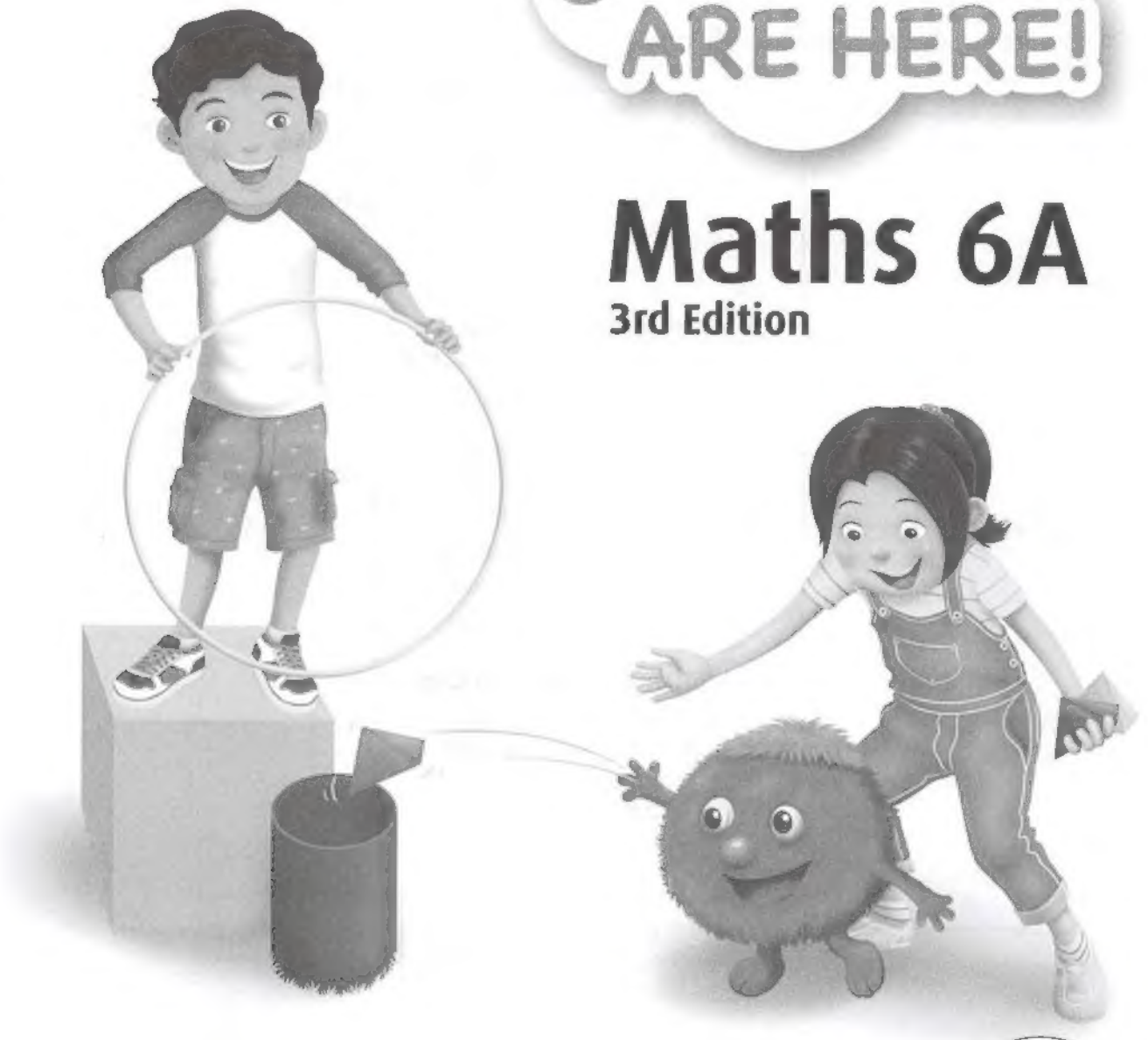


Maths 6A

3rd Edition

Dr Fong Ho Kheong • Gan Kee Soon • Chelvi Ramakrishnan

APPROVED BY MINISTRY OF EDUCATION
for use from 2018–2022

Marshall Cavendish Education

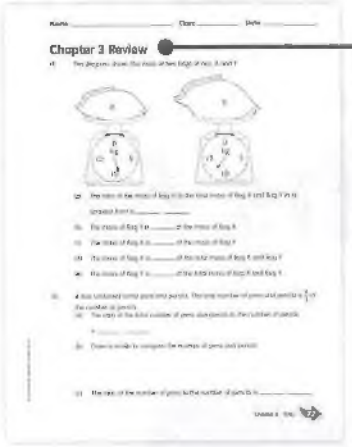
Preface

My Pals Are Here! Maths (3rd Edition) is a comprehensive, task-based and learner-centred programme designed to provide pupils with a solid foundation in mathematics and opportunities to become efficient problem solvers.

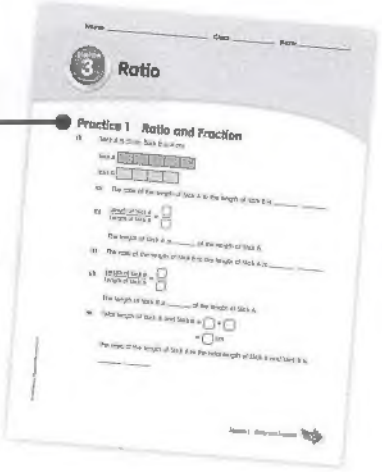
In this edition of the Workbook, pupils are given opportunities to master concepts learnt.

Questions marked with an asterisk (*) are higher-order thinking questions meant to stimulate pupils' thinking.

A calculator may be used when  appears.

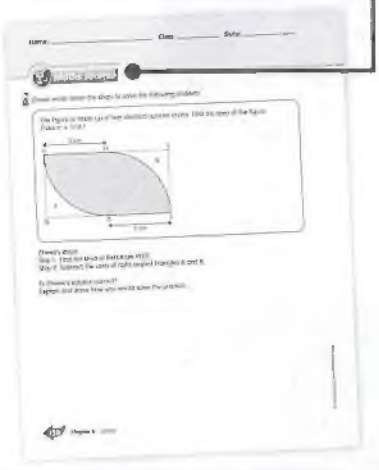


Practice provides a quick reinforcement through questions that require pupils to recall facts and concepts.

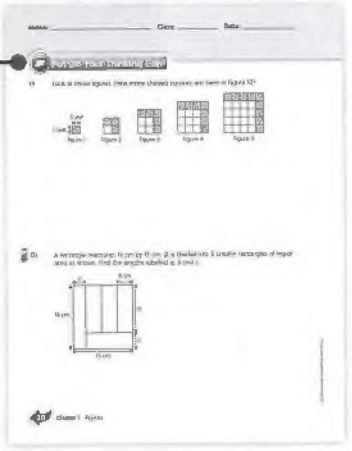


NEW!

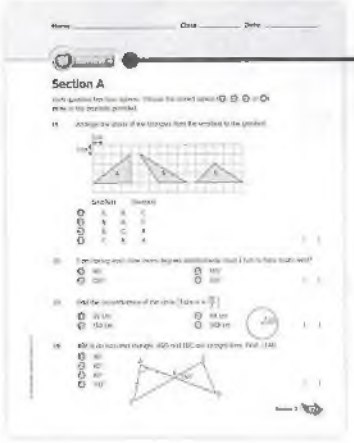
Chapter Review reinforces learning through questions that facilitate mastery of concepts.



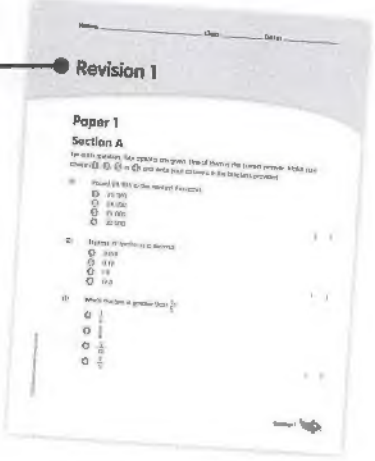
Maths Journal allows pupils to share their thoughts with their teachers, create their own mathematics questions and become aware of their own mathematical thinking.



Put On Your Thinking Cap! develops pupils' creative and critical thinking skills with higher-order and non-routine questions.



Review after every few chapters provides a comprehensive consolidation of concepts.



Revision provides a summative assessment of pupils' understanding. Questions are purposefully crafted to determine pupils' learning progress.

Enjoy learning mathematics with **My Pals Are Here! Maths (3rd Edition)**!

CONTENTS

Name: _____ Class: _____ Date: _____

Algebra

Practice 1 Using Letters to Represent Numbers

(1) Write an algebraic expression for each of the following.

(a) Siti bought x kg of green apples and 3 kg of red apples. What was the total mass of all the apples she bought?

(b) Padma cycled p km on Monday. She cycled 8 km less on Tuesday. What was the distance she cycled on Tuesday?

(c) Erynn glued k seashells on a photo frame. She made 5 such photo frames. How many seashells did she use?

(d) Jiayi typed w words in 40 minutes. How many words did she type in 1 minute?

(2) Write an algebraic expression for each of the following.

(a) Add m to 12

(b) Subtract 9 from y

(c) 6 groups of y

(d) Divide s by 6

(e) Subtract 1 from the product of h and 9

Name: _____ Class: _____ Date: _____

Practice 2 Evaluating Algebraic Expressions

(1) Find the value of $5 + m$ when $m = 8$.

(2) Find the value of $12 - p$ when $p = 7$.

(3) Find the value of $5z$ when $z = 2$.

(4) Find the value of $\frac{n}{6}$ when $n = 12$.

(5) Find the value of $2j - 9$ when $j = 6$.

(6) Find the value of $\frac{d}{5} + 5$ when $d = 40$.

(7) Complete the following table.

Expression	Value of Expression When $x = 5$
$x + 9$	
$7x$	
$20 - 3x$	
$\frac{x}{5} - 1$	

(8) There were m children in a class. Write an expression in terms of m for each of the following and find the value when $m = 35$.

(a) There were 16 girls. How many boys were there?

Expression: _____

Value: _____

(b) Each child received 3 candies and there were 7 candies left over. How many candies were there altogether?

Expression: _____

Value: _____

(c) 3 children were absent and the remaining children formed groups of 4. How many groups of 4 children were there?

Expression: _____

Value: _____

Name: _____ Class: _____ Date: _____

Practice 3 Simplifying Algebraic Expressions

(1) Simplify.

(a) $c + c + c + c =$

(b) $5 \times d =$

(c) $6a + 5a =$

(d) $b + 2b + 3b =$

(e) $10w - 4w =$

(f) $7p - 5p - p =$

(g) $8z - 3z - 5z =$

(h) $12r - 3r + r =$

(i) $3n + 2n - 3n =$

(j) $20h + 5h - h =$

(2) Simplify.

(a) $3b + 8b + 2 =$

(b) $3y - 9 + y =$

(c) $2x + 1 + 3x =$

(d) $d - 2 + 4d =$

(e) $10p - 7p - 5 =$

(f) $5 + 9k - k =$

(g) $3 + 3m - 1 + 6m$
$=$

(h) $7a + 3 - 4a + 4$
$=$

(i) $9e - 2e - 7 + 5e$
$=$

(j) $10n + 10 + n - 8$
$=$

Name: _____ Class: _____ Date: _____

Practice 4 Solving Word Problems

(1) Ann has 3 kg of flour. She buys 2 more packets of flour, each of mass m kg.
(a) Find the amount of flour Ann has altogether in terms of m.
(b) If $m = 2$, how much flour does Ann have altogether?

Ans: (a) _____

(b) _____

(2) Mrs Tham bought z bottles of oil at \$7 each. She gave the cashier \$50.
(a) Find the change Mrs Tham received in terms of z.
(b) If $z = 3$, how much change did Mrs Tham receive?

Ans: (a) _____

(b) _____

(3) Alvin and Bala had 26 stickers. Alvin had 8 more stickers than Bala. How many stickers did Bala have?

Ans: _____

(4) Cindy and David made 32 paper cranes altogether Cindy made 6 fewer paper cranes than David. How many paper cranes did David make?

Ans. _____

(5) At a market, a pear cost b¢ and an apple cost 5¢ less than a pear. Mrs Ravi bought 5 pears and an apple.

(a) Find the total amount in cents Mrs Ravi paid in terms of b.

(b) If each pear cost 60¢, how much did Mrs Ravi pay? Leave your answer in cents.

Ans: (a) _____

(b) _____

(6) Huda had y m of cloth She used 2 m to sew a skirt. She used the remaining cloth to make 3 dresses.

(a) Find the amount of cloth used to make each dress in terms of y.

(b) If Huda had 11 m of cloth, how much cloth was used for each dress?

Ans: (a) _____

(b) _____

(7) Sandy sold 4 times as many oranges as apples. She sold a total of 70 apples and oranges. How many apples did Sandy sell?

Ans: _____

(8) Sally uses a piece of wire 60 cm long to form a rectangle. The length of the rectangle is 5 cm longer than its breadth. What is the length of the rectangle?

Ans: _____

Name: _____ Class: _____ Date: _____

Chapter 1 Review

(1) Write an algebraic expression for the following.

Subtract 20 from p

(2) Find the value of $\frac{7e}{3} - e + 1$ when $e = 3$.

(3) Simplify $12x + 7 + x - 3$.

(4) Angela had $\$6w$. After buying some books at \$17 each, she had $\$w$ left.
(a) Find the number of books Angela bought in terms of w.
(b) If $w = 34$, how many books did Angela buy?

Ans: (a) _____

(b) _____

(5) Kelly, Marvin and Indhu saved \$100 altogether. Kelly saved \$16 more than Indhu. Marvin saved twice the amount Indhu saved. How much did Kelly save?

Ans: _____

Name: _____ Class: _____ Date: _____

Maths Journal

(1) Write down as many algebraic expressions as you can using the two cards.

3	n

(2) Write a problem sum involving the four operations using the terms 3 and n.

Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) Look at these figures. How many shaded squares are there in Figure 10?

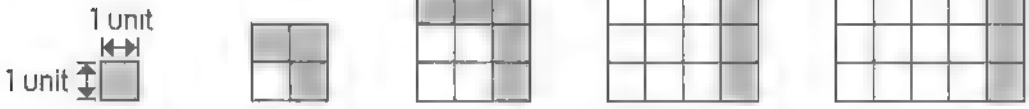
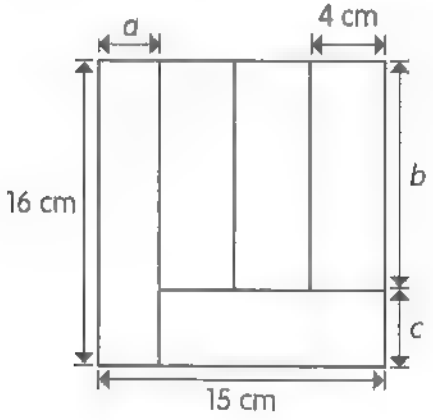


Figure 1 Figure 2 Figure 3 Figure 4 Figure 5

(2) A rectangle measures 16 cm by 15 cm. It is divided into 5 smaller rectangles of equal area as shown. Find the lengths labelled *a*, *b* and *c*.



Name: _____ Class: _____ Date: _____

2 Fractions

Practice 1 Dividing a Fraction by a Whole Number

(1) Find the value of each of the following.

(a) $\frac{1}{3} \div 2 = \frac{1}{3} \bigcirc \frac{\square}{\square}$

$= \frac{\square}{\square}$

(b) $\frac{1}{5} \div 3 =$ _____

(c) $\frac{1}{4} \div 2 =$ _____

(d) $\frac{1}{6} \div 3 =$ _____

(e) $\frac{1}{8} \div 4 =$ _____

(2) Find the value of each of the following. Express your answer in its simplest form.

(a) $\frac{8}{9} \div 4 = \frac{\square \not{8}}{9} \times \frac{1}{\not{4} \square}$

$= \frac{\square \times 1}{9 \times \square}$

$= \_\_\_\_\_$

(b) $\frac{9}{10} \div 3 = \_\_\_\_\_$

(c) $\frac{5}{9} \div 10 = \_\_\_\_\_$

(d) $\frac{6}{7} \div 12 = \_\_\_\_\_$

(e) $\frac{6}{11} \div 8 = \_\_\_\_\_$

Name: _____ Class: _____ Date: _____

Practice 2 Dividing by a Proper Fraction

(1) Find the value of each of the following. Express your answer in its simplest form.

(a) $7 \div \frac{1}{8} = 7 \times \frac{8}{1}$

$= \frac{7 \times \square}{\square}$

$= \_\_\_\_\_$

(b) $3 \div \frac{1}{7} = \_\_\_\_\_$

(c) $2 \div \frac{1}{5} = \_\_\_\_\_$

(d) $12 \div \frac{1}{4} = \_\_\_\_\_$

(e) $11 \div \frac{1}{9} = \_\_\_\_\_$

(2) Find the value of each of the following. Express your answer in its simplest form.

(a) $6 \div \frac{3}{8} = \frac{\square}{\cancel{6}} \times \frac{8}{\cancel{3}\square}$

$= \frac{\square \times 8}{\square}$

$= \_\_\_\_\_$

(b) $8 \div \frac{2}{7} = \_\_\_\_\_$

(c) $10 \div \frac{4}{5} = \_\_\_\_\_$

(d) $2 \div \frac{3}{4} = \_\_\_\_\_$

(e) $4 \div \frac{5}{8} = \_\_\_\_\_$

(3) Find the value of each of the following. Express your answer in its simplest form.

(a) $\frac{5}{6} \div \frac{1}{6} = \frac{5}{\square\not{6}} \times \frac{\not{6}\square}{1}$

$= \frac{5 \times \square}{\square \times 1}$

$= \_\_\_\_\_$

(b) $\frac{1}{2} \div \frac{1}{5} = \_\_\_\_\_$

(c) $\frac{3}{4} \div \frac{1}{8} = \_\_\_\_\_$

(d) $\frac{4}{5} \div \frac{1}{10} = \_\_\_\_\_$

(e) $\frac{8}{9} \div \frac{1}{12} = \_\_\_\_\_$

(4) Find the value of each of the following. Express your answer in its simplest form.

(a) $\frac{3}{10} \div \frac{2}{5} = \frac{3}{\square\!\!\not{10}} \times \frac{\not{5}\square}{2}$

$= \frac{\square \times \square}{\square \times \square}$

$= \underline{\quad\quad}$

(b) $\frac{8}{9} \div \frac{2}{3} = \underline{\quad\quad}$

(c) $\frac{9}{10} \div \frac{3}{7} = \underline{\quad\quad}$

(d) $\frac{3}{4} \div \frac{7}{8} = \underline{\quad\quad}$

(e) $\frac{5}{6} \div \frac{3}{8} = \underline{\quad\quad}$

Name: _____ Class: _____ Date: _____

Practice 3 Solving Word Problems

(1) Gopal pours $\frac{5}{8}\ \ell$ of milk from a jug equally into 2 cups. Find the amount of milk, in litres, in each cup.

Ans: _____

(2) Mei Lin had $\frac{5}{6}$ of a pie. She divided the pie equally among her 3 siblings. What fraction of the pie did each of her siblings receive?

Ans: _____

(3) A group of children shared 12 pizzas equally among themselves at a party. Each child received $\frac{1}{4}$ of a pizza How many children were there at the party?

Ans: _____

(4) A cook divided 12 kg of mashed potatoes equally into some bowls. There was $\frac{3}{20}$ kg of mashed potatoes in each bowl. How many bowls were there?

Ans: _____

(5) Hazif bought $\frac{3}{4}$ kg of chicken. He repacked the chicken into some bags, each containing $\frac{1}{8}$ kg of chicken. How many bags of chicken were there?

Ans: _____

(6) Rahim has $\frac{4}{5}$ ℓ of lime juice left after a party. How many days will he take to finish the remaining juice if he drinks $\frac{1}{5}$ ℓ of it each day?

Ans: _____

(7) Mrs Lim had a piece of rope $\frac{3}{4}$ m long. She cut it into $\frac{1}{10}$-m pieces.

(a) How many $\frac{1}{10}$-m pieces of rope were there at most?

(b) What was the length of the piece of rope left over?

Ans: (a) _____

(b) _____

(8) Miss Shiva pours $2\frac{3}{5}$ ℓ of fruit punch equally into 4 glasses.

(a) Find the amount of fruit punch in each glass. Give your answer as a fraction in its simplest form.

(b) She buys another 2 ℓ of fruit punch. How many more glasses containing the same amount of fruit punch as before can she fill at most?

Ans: (a) _____

(b) _____

(9) Rehna used $\frac{1}{6}$ of a packet of flour to make some muffins and $\frac{1}{4}$ of it to make a cake. She used the remainder to make some cupcakes. She used $\frac{1}{12}$ of the packet of flour for each cupcake. How many cupcakes did she make?

Ans: _____

(10) Carina had some stickers. $\frac{2}{5}$ of them were dinosaur stickers and the rest were flower stickers. She divided the dinosaur stickers equally among some boys such that each boy received $\frac{1}{10}$ of the stickers. She divided the flower stickers equally among some girls such that each girl received $\frac{1}{5}$ of the stickers.

(a) How many boys were there?
(b) How many girls were there?

Ans: (a) _____

(b) _____

(11) Mrs Hamid used $7\frac{3}{4}$ cups of flour to bake a cake, a pie and some loaves of bread. She used $\frac{3}{4}$ cup of flour to bake the pie and twice as much flour to bake the cake.

(a) How many cups of flour did she use to bake the loaves of bread? Express your answer as a mixed number in its simplest form.

(b) She made 2 identical loaves of bread. How many cups of flour did she use to bake a loaf of bread? Give each answer as a mixed number in its simplest form.

Ans: (a) _____

(b) _____

(12) Joshua used $\frac{1}{4}$ of a coil of rope to hold a shelf to the wall, kept $\frac{4}{9}$ of the remainder and used the rest equally to tie 2 parcels.

(a) What fraction of the rope did Joshua use to tie each parcel? Give your answer as a fraction in its simplest form.

(b) Joshua had 240 cm of rope at first. How long was the rope he used to tie each parcel?

Ans: (a) _____

(b) _____

(13) Jiaqi, Gwen and Patricia painted the walls of a room together. Jiaqi painted $\frac{4}{7}$ of the walls. Gwen and Patricia painted an equal amount of the remaining area of the walls. Jiaqi painted $\frac{2}{5}$ m^2 more than the area that Gwen and Patricia each painted. Find the total area of the walls that they painted. Give your answer as a mixed number in its simplest form.

Ans: _____

(14) Nick had 2 identical containers. One container was completely filled with water The other container was $\frac{5}{9}$ filled with syrup. He used some water and some syrup to make a drink. He had the same amount of water and syrup left. He used $\frac{2}{5}$ (more water than syrup How much syrup did he have at first? Give your answer as a fraction in its simplest form.

Ans: _____

(15) During the school holidays, Chris read 312 pages of a book at first. He read the remaining pages in 20 days, with the same number of pages each day. During these 20 days, he read $\frac{1}{12}$ of the book in 6 days. How many pages did he read in the 6 days?

Ans: _____

Name: _____ Class: _____ Date: _____

Chapter 2 Review

(1) Find the value of $\frac{6}{7} \div 4$. Give your answer as a fraction in its simplest form.

(2) Find the value of $5 \div \frac{8}{9}$. Give your answer as a mixed number in its simplest form

(3) Find the value of $\frac{5}{8} \div \frac{3}{4}$. Give your answer as a fraction in its simplest form.

(4) $\frac{3}{7}$ of a number is 69. What is the number?

Ans: _____

(5) Titus has a rectangular piece of fabric $\frac{3}{4}$ m long and $\frac{2}{5}$ m wide. He cuts it into 3 equal pieces. What is the area of each small piece of fabric? Express your answer as a fraction in its simplest form.

Ans: _____

*(6) A gardener planted some seedlings at equal distances apart along a straight road. The 3rd seedling and the 5th seedling were $\frac{9}{10}$ m apart. The 2nd seedling and the last seedling were $6\frac{3}{4}$ m apart. How many seedlings did he plant?

Ans: _____

(7) Celine had 35 kg of pistachios. She sold $\frac{3}{5}$ of the pistachios on Saturday and $\frac{4}{7}$ of the remaining pistachios on Sunday. She then packed the remaining pistachios into some bags, each containing $\frac{5}{8}$ kg of pistachios.

(a) How many bags of pistachios did Celine pack at most?

(b) What was the mass of pistachios left? Give your answer as a fraction in its simplest form.

Ans: (a) _____

(b) _____

(8) Mr Abdul made tuna and curry potato filling for some puffs. $\frac{3}{5}$ of the filling he made was tuna and the rest was curry potato. After he used $\frac{1}{8}$ kg of the tuna filling and made another $\frac{3}{4}$ kg of curry potato filling, he then had equal amounts of tuna filling and curry potato filling left. How much tuna filling did he make at first? Give your answer as a mixed number in its simplest form.

Ans: _____

Name: _____ Class: _____ Date: _____

Math Journal

When a whole number is divided by a proper fraction, is the answer greater than or smaller than the whole number? Support your reasoning with examples.

Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) Nadia and Li Qin had a total of 360 buttons. Nadia gave $\frac{1}{5}$ of her buttons to Li Qin. Li Qin then gave $\frac{1}{4}$ of her buttons to Nadia. In the end, each of them had the same number of buttons. How many buttons did Nadia have at first?

(2) There were 235 more red balloons than green balloons at a party. After $\frac{4}{5}$ of the red balloons and $\frac{3}{4}$ of the green balloons burst, there were 92 balloons left. How many balloons were there altogether at first?

Name: _____ Class: _____ Date: _____

Section A

Each question has four options. Choose the correct option (1, 2, 3 or 4). Write in the brackets provided.

(1) In 61 803, the value of the digit 6 is _____.

1. 60
2. 6000
3. 60 000
4. 600 000

( )

(2) Express 0.07 as a percentage.

1. 7%
2. 0.7%
3. 0.07%
4. 0.007%

( )

(3) How many ninths are there in 4 wholes?

1. 9
2. 18
3. 27
4. 36

( )

(4) Which of the following has the same value as $\frac{5}{6} \div \frac{3}{4}$?

1. $\frac{5}{6} \times \frac{3}{4}$
2. $\frac{6}{5} \times \frac{3}{4}$
3. $\frac{5}{6} \times \frac{4}{3}$
4. $\frac{6}{5} \times \frac{4}{3}$

( )

(5) What is the value of $\frac{4}{5} \div \frac{8}{9}$?

1. $\frac{32}{45}$
2. $\frac{9}{10}$
3. $1\frac{4}{5}$
4. $1\frac{9}{10}$

( )

(6) Find the value of $\frac{88 - p}{6}$ when $p = 32$.

1. $6\frac{2}{9}$
2. $9\frac{1}{3}$
3. $13\frac{1}{3}$
4. 20

( )

(7) The total mass of a block of butter and a box of cherries is 384 g. The mass of the block of butter is twice the mass of the box of cherries. Find the mass of the block of butter.

1. 96 g
2. 128 g
3. 192 g
4. 256 g

( )

(8) Megan places 2 identical mugs into a basket. The mass of each mug is t g. The basket is 80 g lighter than each mug. Find the total mass of the basket and the 2 mugs in terms of t.

1. $2t$ g
2. $3t$ g
3. $(2t - 80)$ g
4. $(3t - 80)$ g

( )

(9) Aaron is twice as old as Ryan. In 3 years, the sum of their ages will be 30 years. Find Aaron's present age.

1. 8
2. 9
3. 16
4. 18

( )

(10) Tammy spent $\frac{2}{5}$ of her savings on a watch. She then spent $\frac{1}{6}$ of the remainder on a bag. What fraction of her money did she have left?

1. $\frac{13}{30}$
2. $\frac{1}{2}$
3. $\frac{3}{5}$
4. $\frac{5}{6}$

( )

Section B

Solve the problems Show your working clearly and write your answers in the spaces provided.

(11) Find the value of 200 + 9 + 0.3 + 0.001.

Ans: _____

(12) Find the value of $97 - 2 \times (16 - 4)$.

Ans: _____

(13) Simplify $8x + 9 - 4x - 2$.

Ans: _____

(14) Find the value of $\frac{4}{5} \div 12$.

Ans: _____

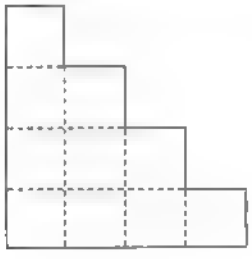
(15) Eileen is $3y$ years old now. Her mother is 4 times as old as her. Find their total age in 7 years' time. Give your answer in terms of y.

Ans: _____

(16) Jessie baked p cupcakes on Saturday. She baked $(p + 3)$ more cupcakes on Sunday than on Saturday. She baked 30 cupcakes altogether. How many cupcakes did Jessie bake on Saturday?

Ans: _____

(17) The figure is made up of 10 identical squares. The perimeter is y cm. What is the side of each square in terms of y?



Ans: _____ cm

Section C

Solve the problems. Show your working clearly and write the answers in the spaces provided.

(18) Usman prepared $\frac{3}{7}$ ℓ of orange juice for some guests. He poured the juice into glasses each with a capacity of $\frac{1}{9}$ ℓ.

(a) How many glasses of orange juice were there at most?

(b) How much orange juice was left? Give your answer as a fraction in its simplest form.

Ans: (a) _____

(b) _____

(19) The mass of a pot completely filled with soup is 6 kg. When it is $\frac{1}{3}$ filled with soup, its mass is 2.8 kg. What is the mass of the empty pot?

Ans: _____

(20) During a sale, a jar of jam costs $2.60 and a bundle of 3 jars of jam costs $5. Sam wants to buy exactly 83 jars of jam. What is the least amount of money he needs?

Ans: _____

Name: _____ Class: _____ Date: _____

Ratio

Practice 1 Ratio and Fraction

(1) Stick A is 5 cm. Stick B is 4 cm.

Stick A 

Stick B 

(a) The ratio of the length of Stick A to the length of Stick B is _____ : _____.

(b) $\frac{\text{Length of Stick A}}{\text{Length of Stick B}} = \frac{\square}{\square}$

The length of Stick A is _____ of the length of Stick B.

(c) The ratio of the length of Stick B to the length of Stick A is _____ : _____.

(d) $\frac{\text{Length of Stick B}}{\text{Length of Stick A}} = \frac{\square}{\square}$

The length of Stick B is _____ of the length of Stick A.

(e) Total length of Stick A and Stick B = $\square + \square$

$= \square$ cm

The ratio of the length of Stick A to the total length of Stick A and Stick B is

_____ : _____.

(2) Maureen has 3 pencils and 8 pens.

(a) Total number of pencils and pens = ☐ + ☐

= ☐

$$\frac{\text{Number of pencils}}{\text{Total number of pencils and pens}} = \frac{\square}{\square}$$

The number of pencils is _____ of the total number of pencils and pens.

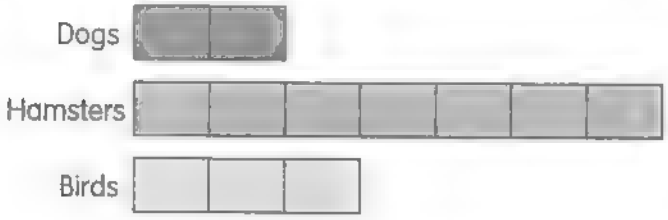
(b) The ratio of the number of pens to the total number of pencils and pens is

_____ : _____.

(c) $$\frac{\text{Number of pens}}{\text{Total number of pencils and pens}} = \frac{\square}{\square}$$

The number of pens is _____ of the total number of pencils and pens.

(3) Calvin keeps 2 dogs, 7 hamsters and 3 birds as pets.



(a) The ratio of the number of dogs to the number of hamsters is _____ : _____.

The number of dogs is _____ of the number of hamsters.

(b) The ratio of the number of birds to the number of dogs is _____ . _____

The number of birds is _____ of the number of dogs.

(c) Total number of pets = ☐ + ☐ + ☐

= ☐

The ratio of the number of dogs to the total number of pets in its simplest form

is _____ : _____.

The number of dogs is _____ of the total number of pets.

(4) Pete played 18 tennis matches in a week. Sam played 6 tennis matches in the same week.

(a) Find the ratio of the number of matches Pete played to the number of matches Sam played.

(b) Express the number of matches Sam played as a fraction of the number of matches Pete played. Give your answer in its simplest form.

(c) Express the number of matches Pete played as a fraction of the number of matches Sam played.

(d) Express the number of matches Pete played as a fraction of the total number of matches the two boys played. Give your answer in its simplest form.

(5) Zalina's mass is $\frac{3}{5}$ of Magdalene's mass.

(a) Draw a model to compare the mass of Zalina and Magdalene.

(b) Express Magdalene's mass as a fraction of Zalina's mass.

(c) What is the ratio of Zalina's mass to Magdalene's mass?

(d) What is the ratio of Magdalene's mass to the total mass of the two girls?

(e) Express Zalina's mass as a fraction of the total mass of the two girls.

(6) Wei Kiat is 4 times as old as Hafiz.

(a) Find the ratio of Wei Kiat's age to Hafiz's age.

(b) What fraction of Wei Kiat's age is Hafiz's age?

(c) What fraction of their total age is Hafiz's age?

(d) Find the ratio of Wei Kiat's age to their total age.

(7) Liza earns 5 times as much money as Mindy. Jai earns $\frac{4}{5}$ of what Liza earns.

(a) Find the ratio of Mindy's salary to Liza's salary.

(b) What fraction of Liza's salary is Mindy's salary?

(c) How many times of Mindy's salary does Jai earn?

(d) Express Jai's salary as a fraction of their total salary in its simplest form.

(8) $\frac{2}{3}$ of the mass of a lobster is equal to $\frac{3}{8}$ of the mass of a king crab. The difference in their masses is $\frac{7}{10}$ kg. What is the mass of the king crab? Express your answer as a mixed number in its simplest form.

Ans. _____

(9) $\frac{2}{5}$ of the length of a side table is equal to $\frac{1}{10}$ of the length of a dining table. The length of the side table is 165 cm shorter than the length of the dining table. What is the length of the dining table?

Ans: _____

Name: _____ Class: _____ Date: _____

Practice 2 Comparing Ratios

(1) (a) Pupils in a school are divided into different groups. The table shows the number of boys and girls in each group. Complete the following table.

Number of Boys	2	4	6	8		12
Number of Girls	5	10	15		25	

The ratio of the number of boys to the number of girls is _____ : _____.

The number of boys is _____ of the number of girls.

(b) The table shows the number of cats and dogs in different parts of a pet adoption centre. Complete the following table.

Number of Cats		14	21	28	35	
Number of Dogs	4	8		16	20	24

The ratio of the number of cats to the number of dogs is _____ : _____.

The number of cats is _____ of the number of dogs.

(c) Siti uses different numbers of tablespoons of water and jelly crystals to make some jelly. Complete the following table.

Number of Tablespoons of Water	8	16		32		48
Number of Tablespoons of Jelly Crystals		6	9		15	18

The ratio of the number of tablespoons of water used to the number of tablespoons of jelly crystals used is _____ : _____

The number of tablespoons of water used is _____ of the number of tablespoons of jelly crystals used.

(2) Mariam uses 5 g of baking powder and 240 g of flour to bake a cake.

(a) Find the ratio of the amount of baking powder used to the amount of flour used. Give your answer in its simplest form.

(b) Mariam uses 25 g of baking powder. How much flour does she need to use?

(c) Mariam uses 720 g of flour. How much baking powder does she need to use?

(d) Mariam wants to bake 4 cakes. How much baking powder and flour does she need to use?

(3) A chef uses salt and sugar in the ratio 2 : 7 to make a sauce. The chef uses 133 g of sugar. How much salt does he use?

(4) A painter mixed red and blue paint in the ratio 4 : 9 to obtain purple paint. He used 12 ℓ of red paint. How much blue paint did he use?

(5) Mrs Rama uses three types of fruit juice for a party. The ratio of the amount of watermelon juice to the amount of apple juice is 4 : 9. The ratio of the amount of apple juice to the amount of orange juice is 27 : 14. Find the ratio of the amount of watermelon juice to the amount of apple juice to the amount of orange juice in its simplest form.

(6) A bookstore sells cookbooks, novels and reference books. The ratio of the number of cookbooks to the number of novels is 2 · 11. The ratio of the number of cookbooks to the number of reference books is 3 · 4. What is the ratio of the number of cookbooks to the number of novels to the number of reference books at the bookstore?

Name: _____ Class: _____ Date: _____

Practice 3 Solving Word Problems

(1) The amount of money Suri spends is $\frac{9}{4}$ of the amount of money Linda spends. Linda spends $116. How much money does Suri spend?

Ans: _____

(2) Maria and Rizal entered a competition as a team. Rizal's score was $\frac{1}{3}$ of Maria's score. Maria scored 46 more points than Rizal. How many points did Maria score?

Ans: _____

(3) The length of a rectangle is 6 times as long as its breadth.

(a) What fraction of the perimeter of the rectangle is the length of the rectangle? Give your answer in its simplest form.

(b) Find the ratio of the length of the rectangle to its breadth to its perimeter

(c) The perimeter of the rectangle is 336 cm. Find the length of the rectangle.

Ans: (a) _____

(b) _____

(c) _____

(4) Li Zhen, Kara and Rose were typing. Li Zhen typed 2 times as fast as Kara. The ratio of the number of words Kara typed to the number of words Rose typed was 4 : 1

(a) What was the ratio of the number of words Li Zhen typed to the number of words Kara typed to the number of words Rose typed?

(b) Kara typed 48 words. How many words did Li Zhen, Kara and Rose type altogether?

Ans: (a) _____

(b) _____

(5) The ratio of the number of marbles Zali had to the number of marbles Muthu had was 3 : 4. Muthu gave half of his marbles to Zali. What was the new ratio of the number of marbles Zali had to the number of marbles Muthu had?

Ans: _____

(6) Mrs Neo has two packets of flour. The ratio of the mass of flour in Packet A to the mass of flour in Packet B is 1 : 2. Mrs Neo uses $\frac{1}{3}$ of the flour in Packet A and has 800 g of flour left altogether. How much flour is there in Packet B?

Ans: _____

(7) Mr Lim put some red pens and blue pens into a box. The ratio of the number of red pens to the number of blue pens was 3 : 4. He put another 20 red pens into the box and the ratio of the number of red pens to the number of blue pens became 2 : 1.

(a) How many red pens were there in the end?

(b) How many blue pens were there?

Ans: (a) _____

(b) _____

(8) The ratio of the number of cakes Ann had to the number of cakes Beth had was 5 . 2. After Ann sold 28 cakes, the ratio of the number of cakes Ann had to the number of cakes Beth had became 3 : 4. How many cakes did Ann have at first?

Ans: _____

(9) The ratio of the number of goats in Farm X to the number of goats in Farm Y was 9 : 4. After 35 goats were transferred from Farm X to Farm Y, there was an equal number of goats in each farm. How many goats were there in Farm Y at first?

Ans: _____

(10) Mr Rahim had the same amount of money in his three bank accounts at first. He deposited $44 into Account B and $80 into Account C. In the end, the ratio of the amount of money in Account A to the amount of money in Account C was 2 : 7. How much money was there in Account B in the end?

Ans: _____

(11) Ethan had some solid-coloured socks and patterned socks. He had $\frac{3}{4}$ as many solid-coloured socks as patterned socks. He threw away 16 pairs of solid-coloured socks and 16 pairs of patterned socks. $\frac{1}{5}$ of his socks were now solid-coloured socks. How many pairs of patterned socks did Ethan have at first?

Ans: _____

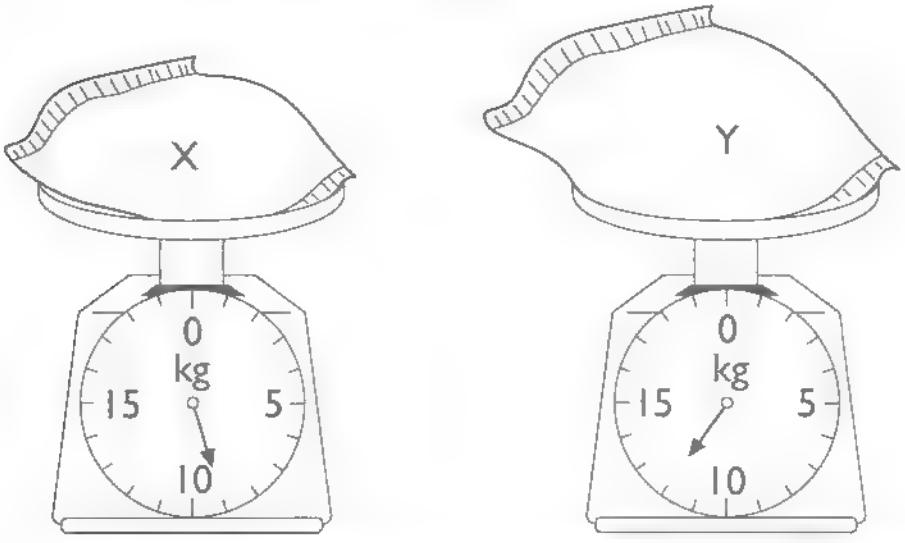
(12) Galvin bought $\frac{3}{5}$ as many non-fiction books as fiction books from a book fair. He read 6 non-fiction books and 13 fiction books. He then had $\frac{3}{4}$ as many non-fiction books left to read as fiction books. How many books did Galvin buy altogether?

Ans: _____

Name: _____ Class: _____ Date: _____

Chapter 3 Review

(1) The diagram shows the mass of two bags of rice, X and Y.



(a) The ratio of the mass of Bag X to the total mass of Bag X and Bag Y in its simplest form is _____ : _____.

(b) The mass of Bag Y is _____ of the mass of Bag X.

(c) The mass of Bag X is _____ of the mass of Bag Y.

(d) The mass of Bag X is _____ of the total mass of Bag X and Bag Y.

(e) The mass of Bag Y is _____ of the total mass of Bag X and Bag Y.

(2) A box contained some pens and pencils. The total number of pens and pencils is $\frac{8}{3}$ of the number of pencils.

(a) The ratio of the total number of pens and pencils to the number of pencils is _____ : _____.

(b) Draw a model to compare the number of pens and pencils.

(c) The ratio of the number of pens to the number of pencils is _____ : _____.

(3) Miss Heng uses 110 g of sugar and 30 g of milk to make some cupcakes.

(a) The ratio of the amount of milk used to the amount of sugar used is

_____ : _____.

(b) To make the same type of cupcakes, Miss Heng needs _____ of sugar if she uses 675 g of milk.

(c) To make the same type of cupcakes, Miss Heng needs _____ of milk if she uses 1650 g of sugar.

(4) Khairul's savings is $\frac{9}{2}$ of Siew Lee's savings.

(a) What is the ratio of Khairul's savings to Siew Lee's savings to their total savings?

(b) Siew Lee saves $28 less than Khairul. How much do they save altogether?

Ans: (a) _____

(b) _____

(5) A hotel ballroom is decorated with tulips, roses and peonies. The ratio of the number of tulips to the number of roses in the ballroom is 2 : 3. There are 4 times as many roses as peonies in the ballroom. There are 575 stalks of flowers in the ballroom altogether. How many tulips are there?

Ans: _____

(6) The ratio of the volume of orange juice in Glass A to the volume of orange juice in Glass B is 5 : 3. Half of the orange juice in Glass A is poured into Glass B. What is the new ratio of the volume of orange juice in Glass A to the volume of orange juice in Glass B?

Ans: _____

(7) There are some dogs, cats and rabbits in a pet farm. The number of dogs is $\frac{3}{5}$ of the total number of cats and rabbits. The ratio of the number of cats to the number of rabbits is 8 : 7 There are 30 more dogs than rabbits. How many animals are there in the farm?

Ans: _____

(8) The ratio of the number of cookies baked by Linus to Omar is 8 : 7. After Linus gave away 36 cookies, Omar had twice as many cookies as Linus. How many cookies did they bake altogether?

Ans: _____

(9) The ratio of the number of pupils queuing at a standing broad jump station to the number of pupils queuing at a shuttle run station was 7 : 4. After 18 pupils at the standing broad jump station went to the shuttle run station, there was an equal number of pupils at both stations. How many pupils were queuing at both stations?

Ans: _____

(10) There were some fiction and non-fiction books in a second-hand bookstore
The number of fiction books was $\frac{3}{5}$ of the number of non-fiction books. After an equal number of fiction and non-fiction books were sold, the ratio of the number of fiction books to the number of non-fiction books left was 5 : 9. There were 240 books altogether at first. How many books were sold altogether?

Ans: _____

Name: _____ Class: _____ Date: _____

Mathematical

(1) Read these statements.

(a) The amount of money May had was $\frac{4}{5}$ of the amount of money John had.

(b) The amount of money Dave had was $\frac{3}{7}$ of the total amount of money Dave and Wayne had altogether.

What does the fraction in each statement mean? Discuss their differences.

(2) For each scenario, write down what changed and what remained the same, if any. Use the words 'decreased', 'increased' or 'remained the same' to help you.

(a) The ratio of the number of men to the number of women at a charity function was 4 : 7 7 women left halfway through the charity function. The ratio of the number of men to the number of women who remained became 2 : 3.

Number of women: _____

Number of men: _____

Total number of men and women: _____

(b) Velma had some local and foreign coins. The ratio of the number of local coins to the number of foreign coins was 9 : 5. She exchanged 10 local coins for the same number of foreign coins. She then had an equal number of local and foreign coins.

Number of local coins: _____

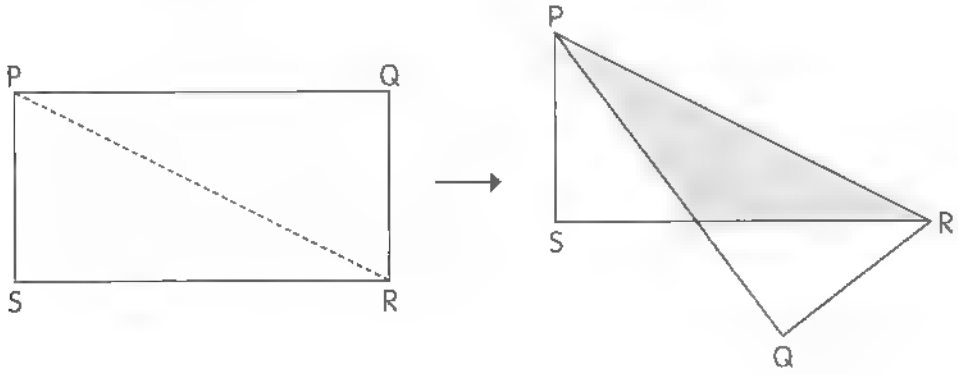
Number of foreign coins: _____

Total number of local and foreign coins: _____

Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) Rectangle PQRS is folded along the line PR. The ratio of the area of Rectangle PQRS to the area of the new figure is 11 : 7. The area of the shaded part is 68 cm^2. Find the area of Rectangle PQRS.



(2) Ariffin had a total of 40 goats and cows in his farm. After selling 29 of them, the ratio of the number of goats sold to the number of goats left was 4 : 1. The ratio of the number of cows sold to the number of cows left was 3 : 2. What was the ratio of the number of goats left to the number of cows left?

Name: _____ Class: _____ Date: _____

Percentage

Practice 1 Finding Percentages

(1) A school's string ensemble has 50 pupils. 27 of them are girls. What percentage of the string ensemble are girls?

Ans: _____

(2) The table shows the number of fiction and non-fiction books in a class library.

Type of Books	Number
Fiction	13
Non-fiction	16

What percentage of the books are fiction books? Give your answer correct to 1 decimal place.

Ans: _____

(3) Mr Poh has 9 pairs of sneakers. Sneakers make up 60% of his footwear. How many pairs of footwear does he own?

Ans: _____

(4) A plate of chilli crab at a seafood restaurant cost $72.76 including 7% GST. Find the cost of the plate of chilli crab before GST.

Ans: _____

(5) Shirley is thinking of a number. 25% of the number is equal to 110. What number is Shirley thinking of?

Ans: _____

(6) Alex has 3 pens in his pencil case. This is 25% of the number of pens that he has. How many pens does Alex have altogether?

Ans: _____

(7) On a particular day, 55% of the visitors to the zoo were children and the rest were adults. There were 165 children. How many visitors were there at the zoo that day?

Ans: _____

(8) 36% of the members in a gym are females There are 252 female gym members. How many members are there altogether in the gym?

Ans: _____

Name: _____ Class: _____ Date: _____

Practice 2 Percentage Change

(1) A library had 570 books when it first opened. A year later, the number of books increased by 30%. How many books were there in the library a year later?

Ans: _____

(2) The price of a watch was $115 when it was launched last year. When a new version of the watch was released this year, the price of the earlier version of the watch decreased by 15%. Find the price of the earlier version of the watch this year.

Ans: _____

(3) Najib bought a handheld game console for $289 after a 15% discount.
(a) How much was the discount?
(b) What was the usual price of the handheld game console?

Ans: (a) _____

(b) _____

(4) On a particular day, the height of the tide at East Coast Park was 0.8 m at dawn. At dusk, the height of the tide increased by 40%. Find the height of the tide at dusk.

Ans: _____

(5) The number of people who visited the Bird Park in February decreased by 30% to 3360 when compared to January.

(a) How many people visited the Bird Park in January?

(b) How many fewer people visited the Bird Park in February?

Ans: (a) _____

(b) _____

(6) Hannah deposited a sum of money into a savings account. The interest was 3% per year. She did not withdraw any of her savings. After 1 year, Hannah had a total of $2832.50 in the savings account.

(a) How much did she deposit into the savings account?

(b) How much interest did she receive at the end of the year?

Ans: (a) _____

(b) _____

(7) 1760 upper primary pupils took part in a sports meet in 2014. This was a decrease of 20% when compared to 2015. The number of upper primary pupils who took part in 2016 increased by 5% when compared to 2015. How many upper primary pupils took part in the sports meet in 2016?

Ans: _____

(8) The temperature of a piece of metal was 32°C. It was then lowered into a glass of hot water and the temperature of the piece of metal rose to 36°C. Find the percentage increase in the temperature of the piece of metal.

Ans: _____

(9) The usual price of a bag of oranges was $4. During a promotion, two bags of oranges were sold for $5.99. Find the percentage decrease in the price of the two bags of oranges. Give your answer correct to 1 decimal place.

Ans: _____

(10) Ramesh collected 24 stamps in January. He collected 30 stamps in February and 36 stamps in March.

(a) Find the percentage increase in the number of stamps collected between January and February.

(b) Find the percentage increase in the number of stamps collected between February and March.

Ans: (a) _____

(b) _____

(11) Nazri ran 16 km last week. He ran 1.4 km more this week. Find the percentage increase in the distance he ran this week.

Ans: _____

(12) Ruzita brought 3000 ml of fruit punch to a picnic. She accidentally spilled 870 ml of fruit punch. What was the percentage decrease in the amount of fruit punch?

Ans: _____

(13) The usual price of a tennis racket was $200 Benny was given a discount of $36 during a sale. Find the percentage discount he enjoyed.

Ans: _____

(14) Mrs Koh placed a few boxes of chicken essence in her luggage. As a result, the mass of her luggage increased by 4 kg. This was a 25% increase in the mass of her luggage. Find the mass of her luggage before the boxes of chicken essence were added.

Ans: _____

(15) Kamisah cut a 2-m piece of cloth from a roll of fabric. It was 8% of the length of the entire roll of fabric. Find the length of cloth left in the roll of fabric.

Ans: _____

(16) Linus received 12 marks more in Test 2 than his score in Test 1. This was a 15% improvement. He then made another 4-mark improvement in Test 3.

(a) What was his score for Test 1?

(b) What was the percentage increase in his test score from Test 2 to Test 3? Give your answer correct to 1 decimal place.

Ans: (a) _____

(b) _____

Name: _____ Class: _____ Date: _____

Practice 3 Solving Word Problems

(1) The table shows the average number of rainy days per month in Singapore in a year.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Number of Days With Rain	15	11	14	15	15	12	13	14	14	16	20	20

(a) What was the percentage decrease in the average number of rainy days per month from May to June?

(b) What was the percentage increase in the average number of rainy days per month from October to November?

Ans: (a) _____

(b) _____

(2) The usual price of a pair of headphones at Store A was $300. Tricia bought it during a sale for $210.

(a) How much was the discount?

(b) What was the percentage discount Tricia received?

Ans: (a) _____

(b) _____

(3) A piano cost $800 more in 2016 than in 2015. This was a 20% increase from the price in 2015. The price of the piano increased by 25% from 2016 to 2017. Find the cost of the piano

(a) in 2016.

(b) in 2017.

Ans: (a) _____

(b) _____

(4) An electronics store gave a storewide discount of 15% during a sale. Barry signed up as a member and was entitled to an additional 8% discount on the discounted price. He bought an airfryer for $125.12. What was the usual price of the airfryer?

Ans: _____

(5) There are 1700 seats in a theatre. 40% of the tickets to a concert at the theatre are Category 1 tickets and the rest are of other categories. How many Category 1 tickets must be added so that the number of tickets of other categories will be decreased to 55%?

Ans: _____

(6) The usual price of a watch was $87.50. The usual price of a wall clock was $\frac{2}{5}$ of the usual price of the watch. Mandy bought the wall clock at 15% discount during the Great Singapore Sale. Find the discount given on the wall clock.

Ans: _____

(7) At a soccer match, 60% of the spectators are men and the rest are women and children. The number of children is $\frac{2}{3}$ of the number of women. There are 252 more men than women at the soccer match. How many spectators are there altogether?

Ans: _____

(8) A bakery sells taro, red bean and green tea pies. 65% of the pies are taro pies. 40% of the remaining pies are red bean pies.

(a) What percentage of the pies are red bean pies?

(b) There are 378 green tea pies. How many pies are there altogether?

Ans: (a) _____

(b) _____

Name: _____ Class: _____ Date: _____

Chapter 4 Review

(1) David had $12 in his wallet. This was 20% of the amount that he received from his mother. Find the total amount of money that David received from his mother.

Ans: _____

(2) Alina's home is 15 km from Sentosa. She cycles a distance of 8 km. What percentage of the total distance does she have left to cover? Give your answer correct to 2 decimal places.

Ans: _____

(3) Last year, 3300 people took part in an art competition. This year, the number of participants increased by 50%. How many people took part in the art competition this year?

Ans: _____

(4) The midday temperature in Dubai on a particular day was 41°C. At midnight, the temperature decreased to 31.5°C. Find the percentage decrease in the temperature. Give your answer correct to 1 decimal place.

Ans: _____

(5) The usual price of a washing machine is $899. Eddie pays $269.70 less for the washing machine after receiving a discount. Find the percentage discount Eddie receives.

Ans: _____

(6) Anne gains 7 2 kg from January to February. This is an 18% increase in her mass. What is Anne's mass in February?

Ans: _____

(7) The usual price of a pair of sunglasses in Store A was $114. This was 95% of the usual price of an identical pair of sunglasses in Store B. Both stores gave the same discount on the pair of sunglasses during a sale The pair of sunglasses cost $96 after discount in Store B.

(a) What was the usual price of the pair of sunglasses in Store B?

(b) What was the discount for the pair of sunglasses?

Ans: (a) _____

(b) _____

(8) Jamie's monthly rental for her apartment was $1600. Patrick's monthly rental was $\frac{9}{10}$ of Jamie's monthly rental. Patrick's landlord increased his monthly rental by 25%. Find the increase in Patrick's monthly rental.

Ans: _____

Name: _____ Class: _____ Date: _____

Mathematical

(1) Aden answered the following questions incorrectly. Explain to Aden his mistakes and show him the correct solutions.

(a) 40 pupils took part in a competition. 15 pupils qualified for the finals.
What percentage of the pupils qualified for the finals?

Aden keyed the following into his calculator:

$\left[\frac{15}{40}\right]$[×][100][%]

Aden's working:

$\frac{15}{40} \times 100\% = 0.375\%$

0.375% of the pupils qualified for the finals.

Explanation

Correct solution

(b) In the morning, the temperature in a garden was 28°C. In the afternoon, the temperature increased to 34°C. What was the percentage increase in the temperature? Give your answer correct to 1 decimal place

Aden's working:
Increase in temperature $= 34 - 28$
$= 6°C$

$\frac{6}{34} \times 100\% = 17.6\%$ (correct to 1 decimal place)

The percentage increase in the temperature was 17.6%.

Explanation

Correct solution

(2) You learnt about percentage change in this chapter. What is the most difficult part in learning how to find percentage change? Why? How can you help yourself overcome the difficulty?

Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) Mr Omar bought a laptop at a discount. If he sold the laptop at its usual price, he would receive $550 more than the amount he paid. If he sold it at 80% of its usual price, he would receive $350 less than the amount he paid. How much did Mr Omar pay for the laptop?

(2) Mrs Wong sold some cakes to Shops A, B and C. Shop A bought 20% of the cakes. Shop B bought 4 times as many cakes as Shop C. Shop B bought 88 more cakes than Shop A. How many cakes did Mrs Wong sell altogether?

Name: _____ Class: _____ Date: _____

Section A

Each question has four options. Choose the correct option (1, 2, 3 or 4).
Write in the brackets provided.

(1) Mr Ng bought 8 oranges, 12 apples and 14 papayas. What was the ratio of the total number of fruits to the number of apples?

1. 6 : 11
2. 6 : 17
3. 11 : 6
4. 17 : 6

( )

(2) In a class, 12 pupils walk to school. This is 40% of the total number of pupils in the class. How many pupils are there in the class?

1. 30
2. 18
3. 12
4. 6

( )

(3) A board game cost $20 before GST. There was a 7% GST on the board game. How much was the GST?

1. $0.70
2. $1.40
3. $18.60
4. $21.40

( )

(4) Kelly spent 40% of her savings and had $21 left. How much did she spend?

1. $8.40
2. $14.00
3. $35.00
4. $49.00

( )

(5) The price of a camera was $2800. During a sale, there was a 15% discount for the camera. What was the discounted price of the camera?

1. $3220
2. $2380
3. $2100
4. $420

( )

(6) Tom has some local and foreign stamps. The total number of stamps is $\frac{9}{5}$ of the number of foreign stamps. What is the ratio of the number of foreign stamps to the number of local stamps?

1. 5 : 4
2. 4 : 5
3. 9 : 5
4. 5 : 9

( )

(7) The ratio of the number of boys to the number of girls at a birthday party was 4 : 9. 17 girls left. The ratio of the number of boys to the number of girls became 6 : 5. Find the total number of boys and girls at first.

1. 22
2. 24
3. 37
4. 39

( )

(8) A box contains some red, yellow and blue beads. The ratio of the number of red beads to the number of yellow beads is 2 : 5. The ratio of the number of blue beads to the number of red beads is 4 : 7. What fraction of the beads are yellow?

1. $\frac{35}{57}$
2. $\frac{22}{57}$
3. $\frac{14}{57}$
4. $\frac{8}{57}$

( )

(9) A meal at a restaurant cost $5. Its price increased to $6 the following week. What was the percentage increase in the cost of the meal?

1. 20%
2. 25%
3. 80%
4. 125%

( )

(10) 60% of John's stamps are local stamps. What is the ratio of the number of local stamps to the number of foreign stamps that John has?

1. 3 : 5
2. 5 : 3
3. 3 : 2
4. 2 : 3

( )

Section B

Solve the problems. Show your working clearly and write your answers in the spaces provided.

(11) Express $\frac{3}{4}$ as a percentage.

Ans: _____

(12) There are 250 adults and children at a funfair altogether. There are 90 adults at the funfair. What percentage of the people at the funfair are adults?

Ans: _____

(13) The ratio of Sue's age to Tom's age is 5 : 7. Sue is 6 years younger than Tom. How old is Tom?

Ans: _____

(14) Jane's monthly allowance decreased from $80 in June to $48 in July. What was the percentage decrease in her allowance from June to July?

Ans: _____

(15) Sean, Ryan and Lucas shared $580 in the ratio 2 : 3 . 5. How much less money did Ryan receive than the total amount Lucas and Sean received?

Ans: _____

(16) 30% of the pupils in a class are boys and the rest are girls. All the boys and $\frac{2}{5}$ of the girls like to play badminton. What percentage of the class like to play badminton?

Ans: _____

Section C

Solve the problems. Show your working clearly and write your answers in the spaces provided.

(17) Ally has $\frac{1}{2}$ as many stickers as Bella. Bella has $\frac{3}{2}$ as many stickers as Coco.

(a) What is the ratio of the number of stickers Ally has to the number of stickers Bella has to the number of stickers Coco has?

(b) Ally has 24 stickers. How many more stickers does Bella have than Coco?

Ans: (a) _____

(b) _____

*(18) There were 30 pupils in a band. 60% of the pupils were boys. Some boys left the band and the percentage of boys dropped to 20%. How many boys left the band?

Ans: _____

(19) Mr Tham picked twice as many oranges as mangoes from his farm. While sorting out the fruits, he found that only 60% of the fruits are edible. The ratio of the number of edible oranges to the number of edible mangoes was 5 : 3. There were 90 more edible oranges than edible mangoes.

(a) What was the total number of edible oranges and mangoes?

(b) How many oranges did Mr Tham pick at first?

Ans: (a) _____

(b) _____

*(20) Darren, Muthu and Hafiz shared the cost of a gift equally using their savings. Darren saved $36 more than Muthu. If Darren paid for the gift first, the ratio of Darren's remaining savings to Muthu's savings to Hafiz's savings would be 4 : 9 : 11. If Muthu paid for the gift first, the ratio of Darren's savings to Muthu's remaining savings to Hafiz's savings would be 12 : 1 : 11. If Hafiz paid for the gift first, the ratio of Darren's savings to Muthu's savings to Hafiz's remaining savings would be 4 : 3 : 1. How much did the gift cost?

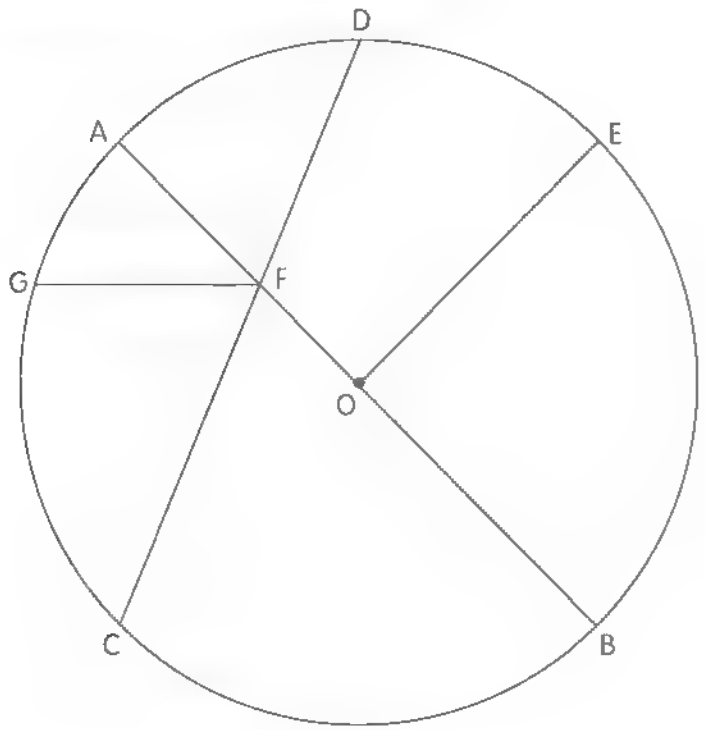
Ans: _____

Name: _____ Class: _____ Date: _____

5 Circles

Practice 1A Radius and Diameter

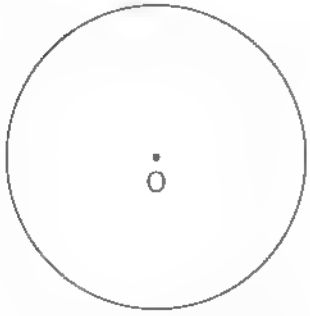
(1) In the following circle, O is the centre.
Name a radius and a diameter.



Radius = _____

Diameter = _____

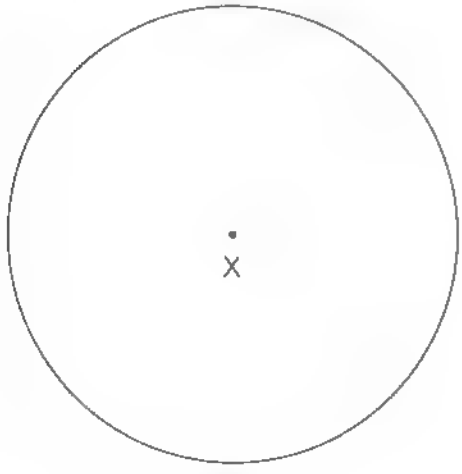
(2) In the circle, O is the centre.



(a) Draw a radius.
(b) Measure the radius.

It is _____ cm.

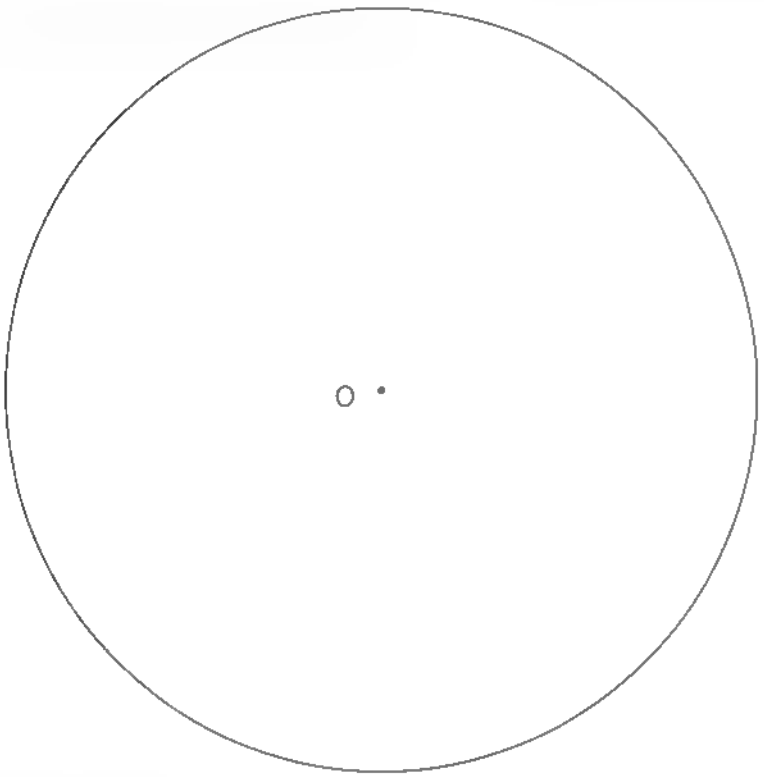
(3) In the circle, X is the centre.



(a) Draw a diameter.
(b) Measure the diameter.

It is _____ cm.

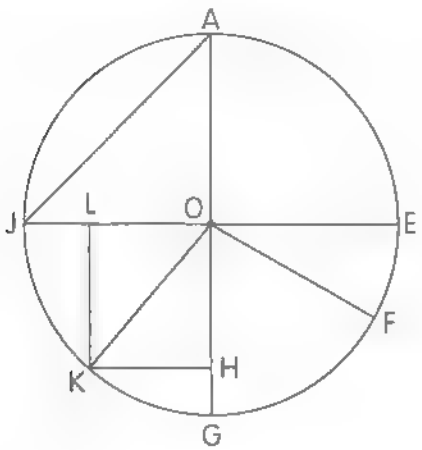
(4) In the following circle, O is the centre. Draw a radius and a diameter. Measure the radius and the diameter.



Radius = _____ cm

Diameter = _____ cm

(5) In the figure, O is the centre of the circle.



(a) Name all the radii.

_____

(b) Name all the diameters.

_____

(6) Complete the table.

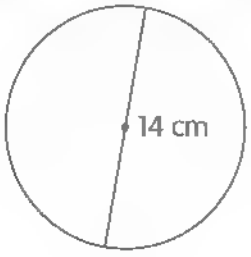
Radius of a Circle	Diameter of a Circle
6 cm	12 cm
4 cm	
	14 m
	5 cm
6.4 cm	
	11.3 m

Name: _____ Class: _____ Date: _____

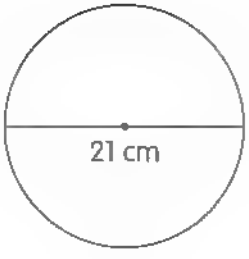
Practice 1B Circumference

(1) Find the circumference of each circle. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(a)

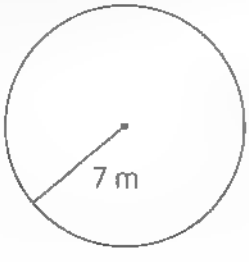


(b)

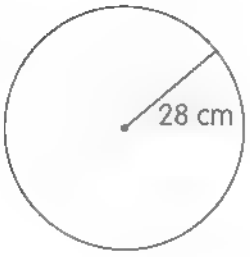


(2) Find the circumference of each circle. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(a)

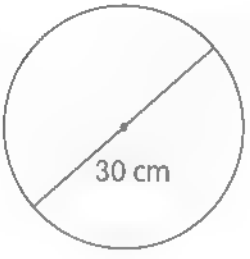


(b)

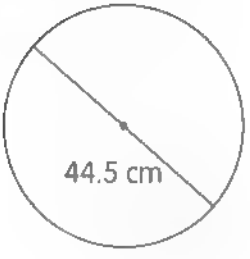


(3) Find the circumference of each circle. (Take $\pi = 3.14$.)

(a)

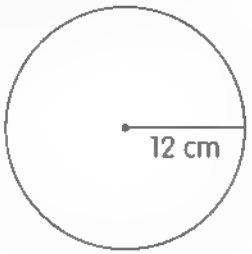


(b)

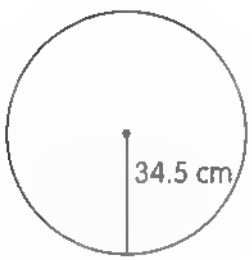


(4) Find the circumference of each circle. (Take $\pi = 3.14$.)

(a)

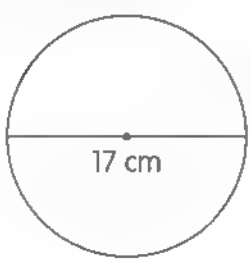


(b)



(5) Find the circumference of each circle. Give your answer correct to 1 decimal place

(a)



(b)

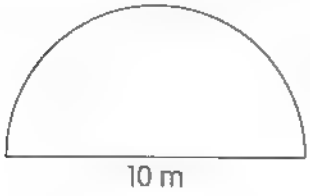
(6) Find the circumference of a ferris wheel of diameter 84 m. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(7) Find the circumference of a circular pond of radius 96 cm. Give your answer correct to the nearest centimetre. (Take $\pi = 3.14$.)

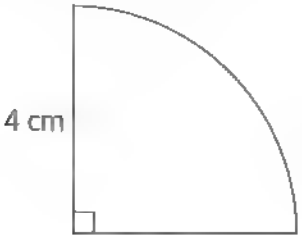
(8) A wheel has a radius of 27 cm. It makes 30 complete turns. What is the distance it travels? Leave your answer in centimetres. (Take $\pi = 3.14$.)

(9) A wheel has a radius of 21 cm. How many complete turns must it make to cover a distance of 1980 cm? $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(10) (a) The figure shows a semicircle with diameter 10 m. Find the perimeter of the figure. (Take $\pi = 3.14$.)



(b) The figure shows a quarter circle with radius 4 cm Find the perimeter of the figure. (Take $\pi = 3.14$.)

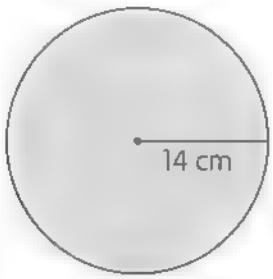


Name: _____ Class: _____ Date: _____

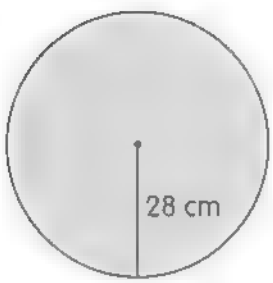
Practice 2 Area of a Circle

(1) Find the area of each circle. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

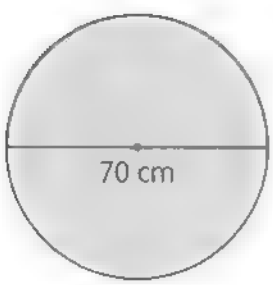
(a)



(b)



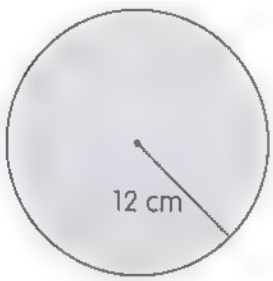
(c)



(d)

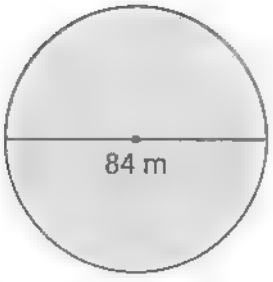
(2) Find the area of each circle. (Take $\pi = 3.14$.)

(a)

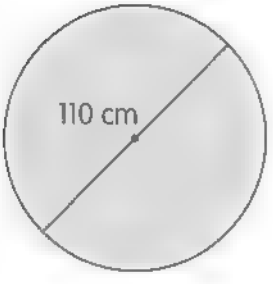


(b)

(c)

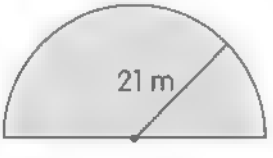


(d)



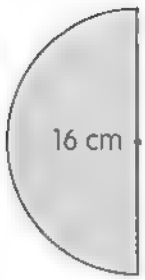
(3) Find the area of each semicircle.

(a)



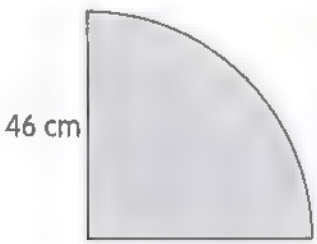
$\left(\text{Take } \pi = \frac{22}{7}.\right)$

(b)

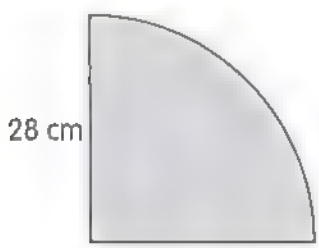


(Take $\pi = 3.14$.)

(4) Find the area of the quarter circle. (Take $\pi = 3.14$.)



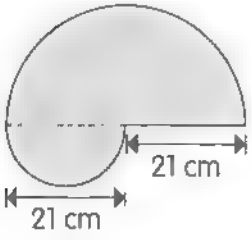
(5) Find the area of the quarter circle. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



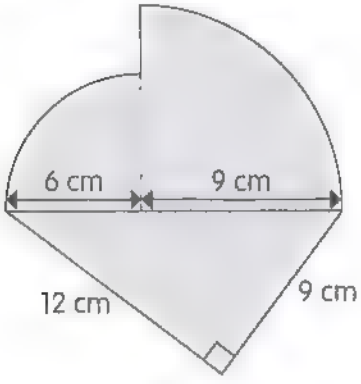
Name: _____ Class: _____ Date: _____

Practice 3 Composite Figures

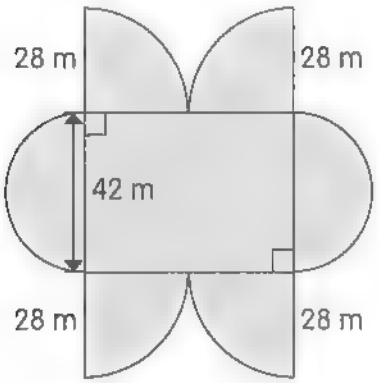
(1) The figure is made up of a small semicircle of diameter 21 cm and a large semicircle of radius 21 cm. Find its perimeter and area. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



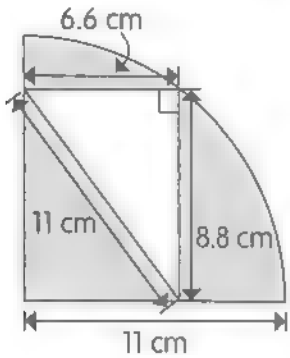
(2) The figure is made up of a triangle and two quarter circles. Find its perimeter and area. Give your answers correct to 1 decimal place. (Take $\pi = 3.14$.)



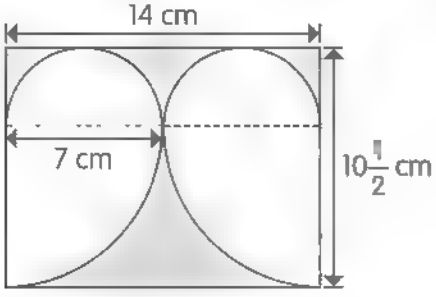
(3) The figure is made up of a rectangle, four identical quarter circles and two identical semicircles. Find its perimeter and area. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



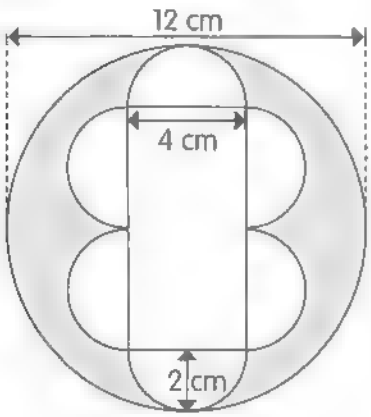
(4) The figure shows a quarter circle and a triangle. Find the area of the shaded part. Give your answer correct to 1 decimal place.



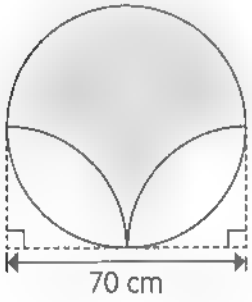
(5) The figure shows two identical semicircles and two identical quarter circles in a rectangle. Find the area of the shaded part. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



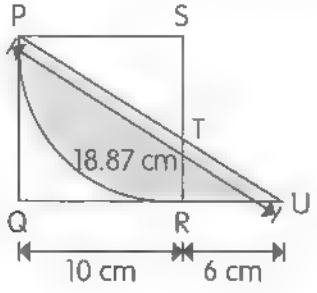
(6) The figure shows a rectangle and 6 identical semicircles in a circle. Find the area of the shaded part. (Take $\pi = 3.14$.)



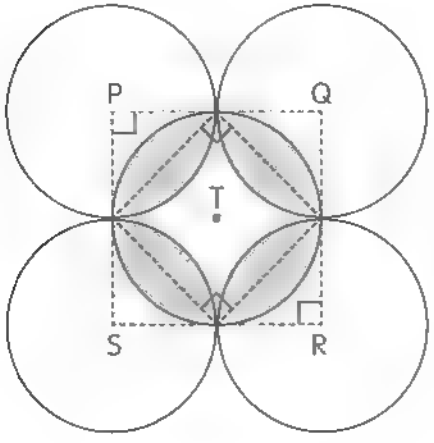
(7) The figure shows a circle and two identical quarter circles. The diameter of the circle is 70 cm. Find the area and perimeter of the shaded part. Leave your answers in terms of π.



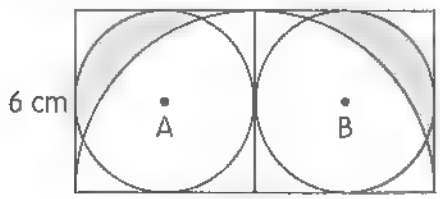
(8) In the figure, PQRS is a square of side 10 cm with a quarter circle enclosed within it. PQRUT is a triangle where PTU = 18.87 cm and RU = 6 cm. PTU and QRU are straight lines. Find the perimeter and area of the shaded part (Take $\pi = 3.14$.)



(9) The figure shows five identical circles with centres P, Q, R, S and T. The shaded parts are identical. Each circle has a diameter of 28 cm. Find the area of the shaded parts. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



(10) The figure shows a semicircle, two identical circles and two identical squares of sides 6 cm. A and B are the centres of the circles. Find the area of the shaded parts. (Take $\pi = 3.14$.)



Name: _____ Class: _____ Date: _____

Chapter 5 Review

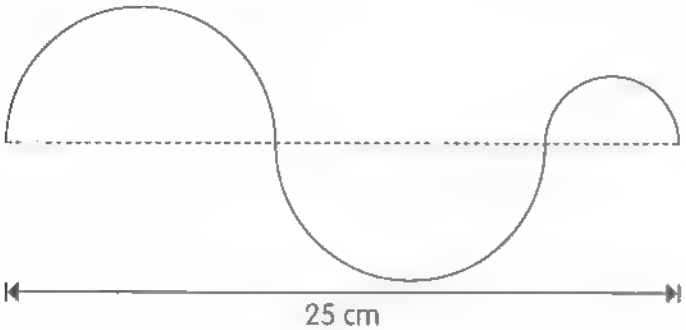
(1) Find the area and circumference of the following.

(a) A circle of radius 7 cm $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(b) A circle of diameter 20 cm (Take $\pi = 3.14$.)

(2) A wheel of radius 14 cm makes 3 complete turns. What is the distance it travels? $\left(\text{Take } \pi = \frac{22}{7}.\right)$

(3) A wire was used to form a small semicircle and two large identical semicircles. The diameter of each large semicircle is twice the diameter of the small semicircle. What was the length of wire used? (Take $\pi = 3.14$.)

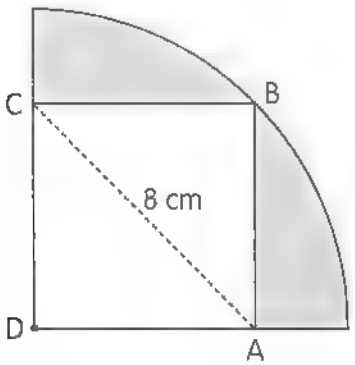


(4) A field is made up of a rectangle and two identical semicircles. The length of the rectangle is 200 m and the radius of each semicircle is 40 m. Find the perimeter and area of the field. (Take $\pi = 3.14$.)

*(5) The figure shows Square ABCD and a quarter circle. The length of AC is 8 cm.

(a) What is the radius of the quarter circle?

(b) What is the total area of the shaded parts? Give your answer correct to 2 decimal places.



(6) Identical circles are cut from a piece of rectangular cardboard 3 m long and 25 cm wide.

(a) How many identical circles can be cut from the cardboard?

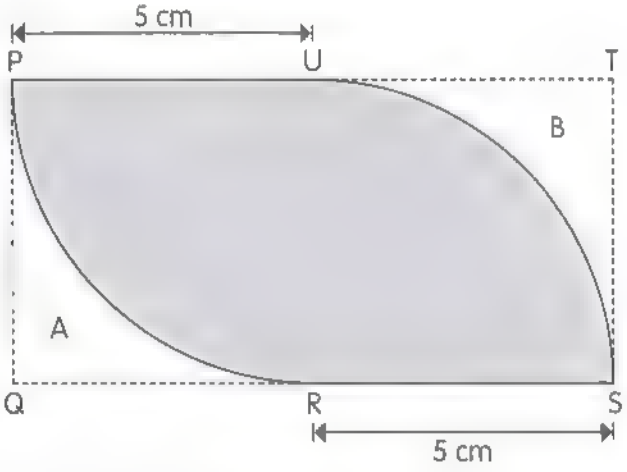
(b) What is the area of the cardboard left after cutting out all the identical circles? (Take $\pi = 3.14$.)

Name: _____ Class: _____ Date: _____

Math Journal

Zhiwei wrote down the steps to solve the following problem.

The figure is made up of two identical quarter circles. Find the area of the figure. (Take $\pi = 3.14$.)



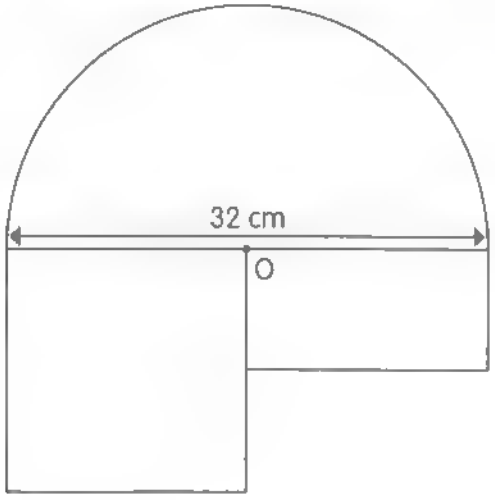
Zhiwei's steps:
Step 1: Find the area of Rectangle PQST.
Step 2: Subtract the area of right-angled Triangles A and B.

Is Zhiwei's solution correct?
Explain and show how you would solve the problem.

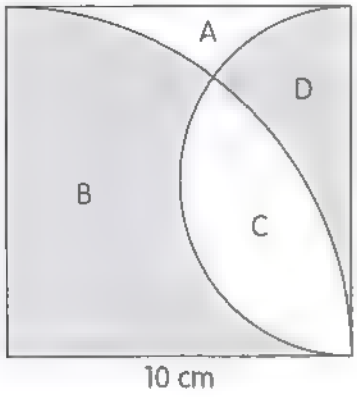
Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) The figure shows a square, a rectangle and a semicircle with centre O. The diameter of the semicircle is 32 cm. Find the perimeter of the figure. (Take $\pi = 3.14$.)



(2) The figure shows one quarter circle and one semicircle in a square of sides 10 cm. Find the difference in area between the shaded parts B and D. (Take $\pi = 3.14$.)

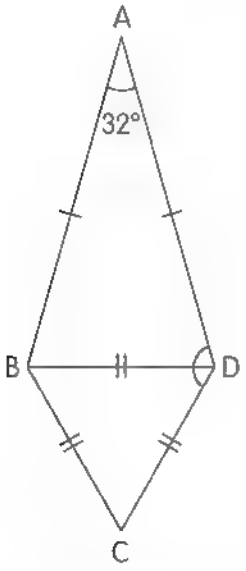


Name: _____ Class: _____ Date: _____

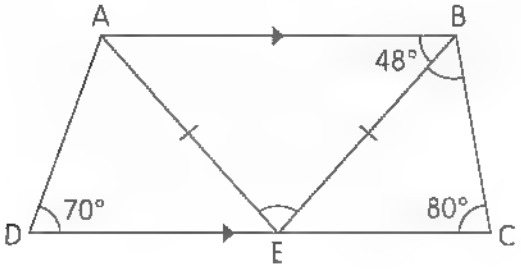
6 Angles in Geometric Figures

Practice 1 Finding Unknown Angles in Geometric Figures

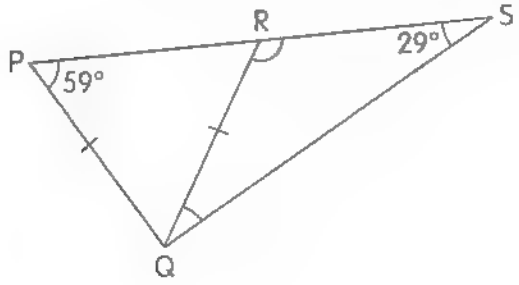
(1) ABD is an isosceles triangle. BCD is an equilateral triangle. Find ∠ADC.



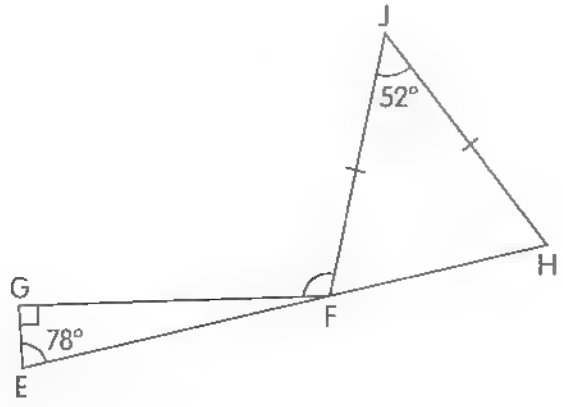
(2) ABCD is a trapezium ABE is an isosceles triangle Find ∠AEB and ∠EBC.



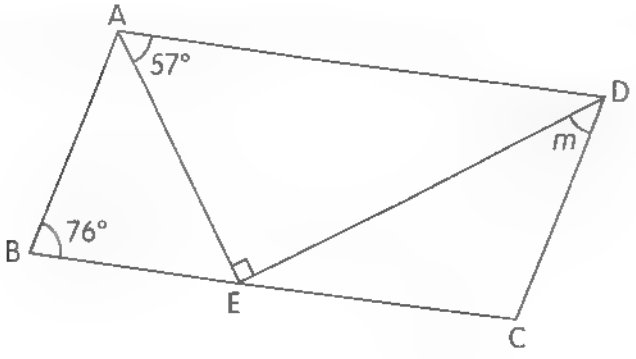
(3) PQR is an isosceles triangle. PQ = QR. PRS is a straight line. Find ∠SRQ and ∠RQS.



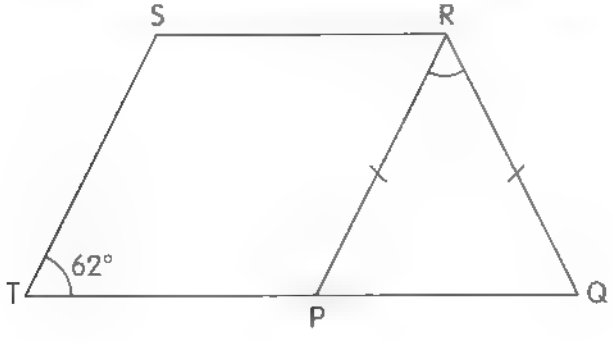
(4) EFG is a right-angled triangle. EFH is a straight line. FHJ is an isosceles triangle. Find ∠GFJ.



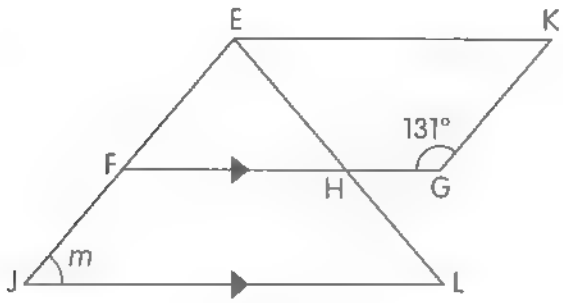
(5) ABCD is a parallelogram. AED is a right-angled triangle. Find $\angle m$.



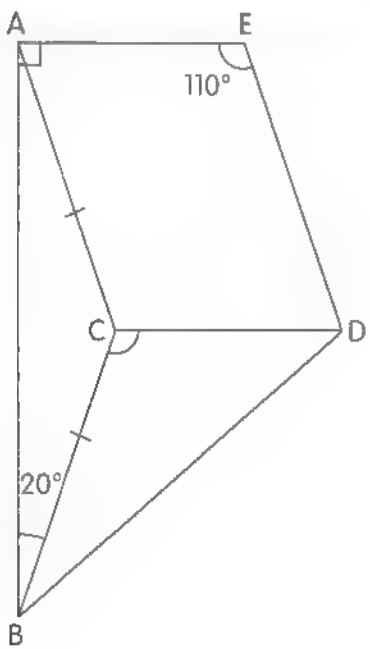
(6) PQR is an isosceles triangle. PRST is a rhombus. TPQ is a straight line. Find $\angle$QRP.



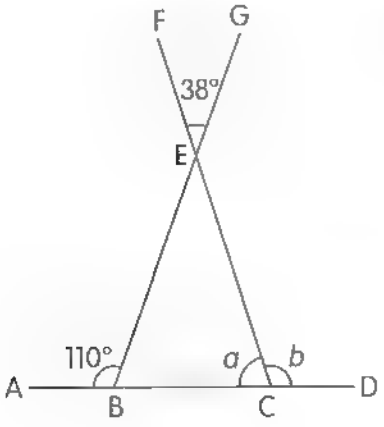
(7) EFGK is a parallelogram. EJL is a triangle. FG // JL. Find $\angle m$.



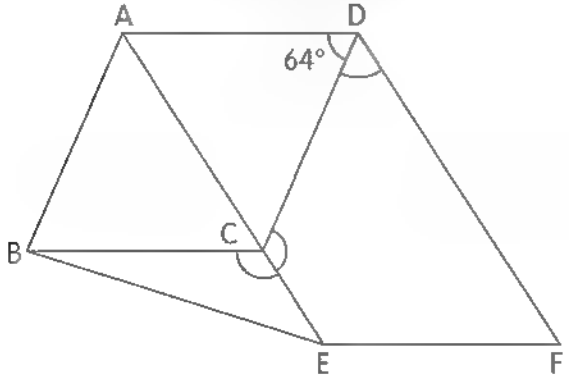
(8) ABC is an isosceles triangle. ACDE is a parallelogram. Find $\angle BCD$.



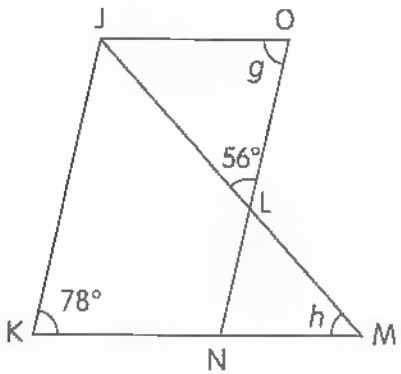
(9) ABCD, BEG and CEF are straight lines. Find $\angle a$ and $\angle b$.



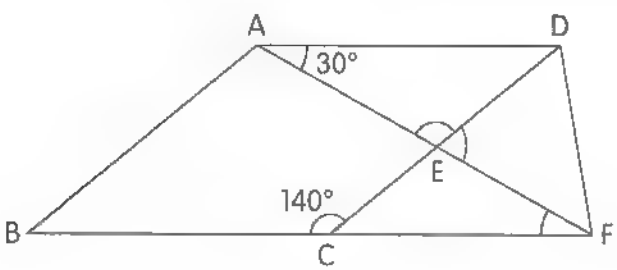
(10) ABCD is a rhombus. AEFD is a parallelogram. Find ∠DCE, ∠CDF and ∠ECB.



(11) JKNO is a parallelogram. KNM and JLM are straight lines. Find $\angle g$ and $\angle h$.



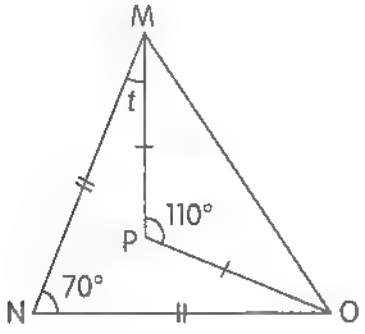
(12) ABCD is a parallelogram. AEF, CED and BCF are straight lines. Find $\angle$AED, $\angle$DEF and $\angle$CFE.



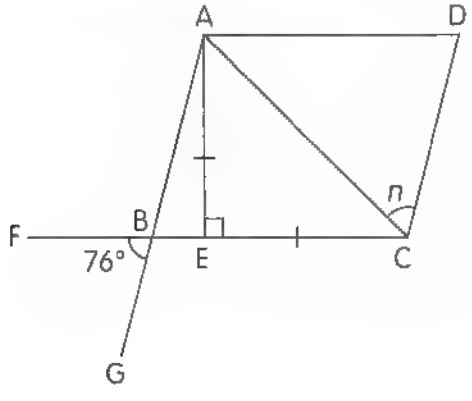
Name: _____ Class: _____ Date: _____

Chapter 6 Review

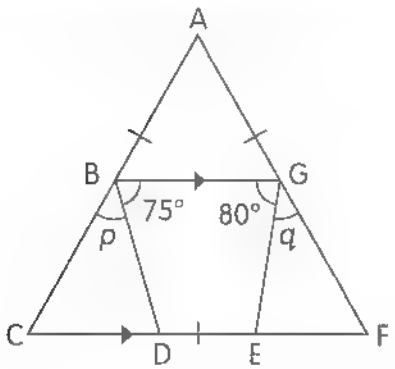
(1) MNO and MPO are isosceles triangles. Find $\angle t$.



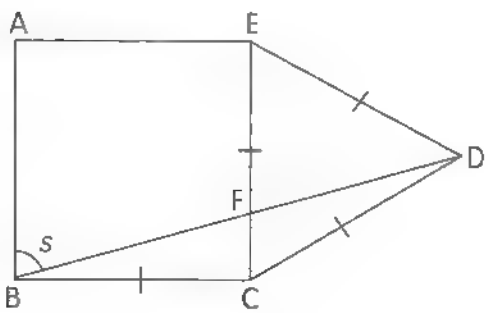
(2) FBEC and ABG are straight lines. ABCD is a parallelogram. AEC is an isosceles right-angled triangle. Find $\angle n$.



(3) ACF is an equilateral triangle. BDEG is a trapezium. Find $\angle p$ and $\angle q$.



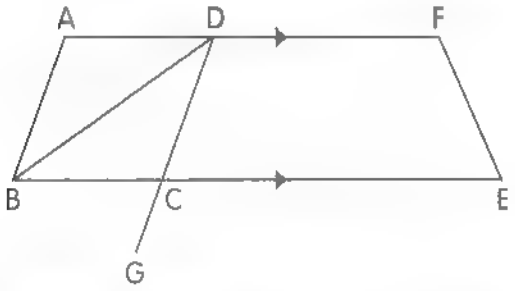
(4) CDE is an equilateral triangle. BCD is an isosceles triangle. BC = CD. ABCE is a square
Find $\angle s$.



Name: _____ Class: _____ Date: _____

Maths Journal

ABCD is a rhombus. DCEF is a trapezium. ADF, BCE and DCG are straight lines.



Write a statement about each of the following.

(a) Angles at point B

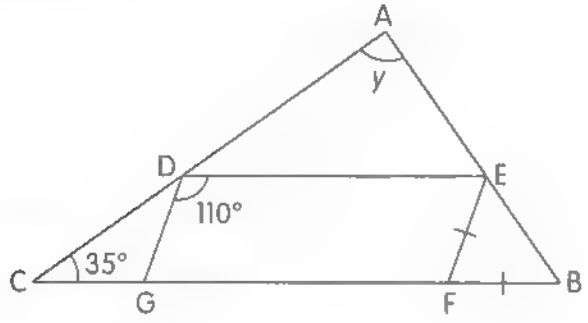
(b) Angles at point C

(c) Angles in trapezium DCEF

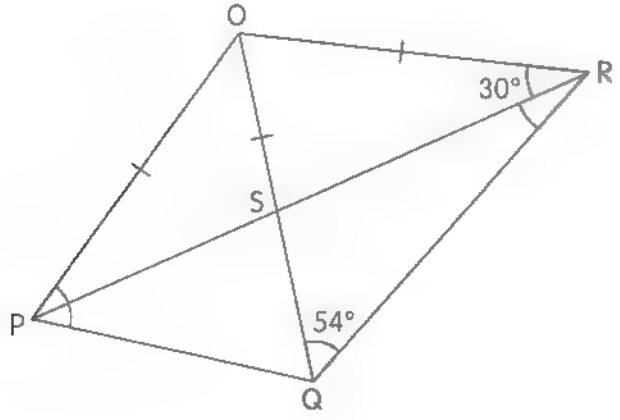
Name: _____ Class: _____ Date: _____

Put On Your Thinking Cap!

(1) ABC and CDG are triangles. BEF is an isosceles triangle. DEFG is a parallelogram. FB = EF. Find $\angle y$.



(2) OPQ, OQR and OPR are isosceles triangles. $\angle SRO = 30^\circ$. $\angle SQR = 54^\circ$. Find $\angle QRS$ and $\angle OPQ$.

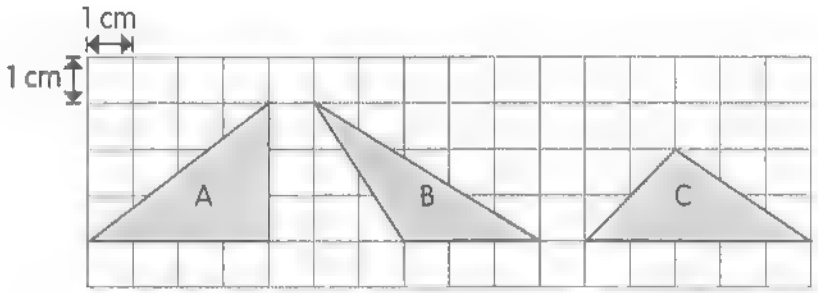


Name: _____ Class: _____ Date: _____

Section A

Each question has four options. Choose the correct option (1, 2, 3 or 4). Write in the brackets provided.

(1) Arrange the areas of the triangles from the smallest to the greatest.



	Smallest		Greatest
1	A,	B,	C
2	B,	A,	C
3	B,	C,	A
4	C,	B,	A

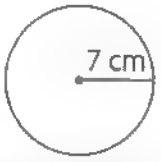
( )

(2) I am facing east. How many degrees anticlockwise must I turn to face south-west?

1 90° 2 135°
3 225° 4 315° ( )

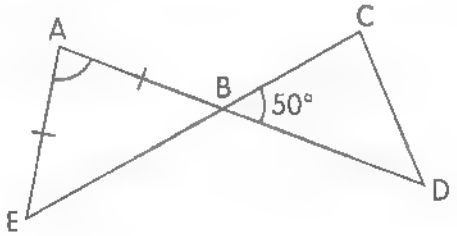
(3) Find the circumference of the circle. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

1 22 cm 2 44 cm
3 154 cm 4 308 cm ( )



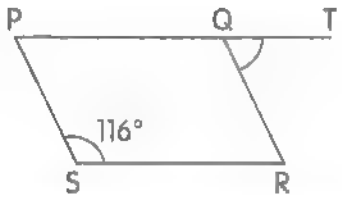
(4) ABE is an isosceles triangle. ABD and EBC are straight lines. Find ∠EAB.

1 50°
2 60°
3 80°
4 100° ( )



(5) PQRS is a parallelogram. PQT is a straight line. Find ∠TQR.

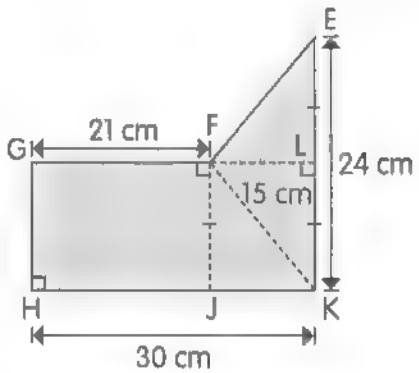
1. 32°
2. 52°
3. 64°
4. 116°



( )

(6) The figure is made up of a rectangle of length 21 cm and three identical right-angled triangles. FK = 15 cm. HK = 30 cm. EL = LK = FJ. Find its area.

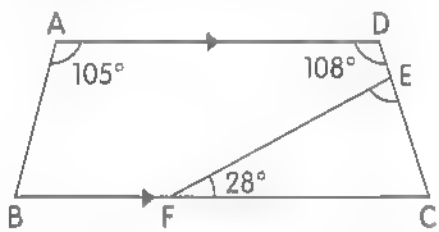
1. 360 cm²
2. 414 cm²
3. 517.5 cm²
4. 522 cm²



( )

(7) ABCD is a trapezium. CED is a straight line. Find ∠FEC.

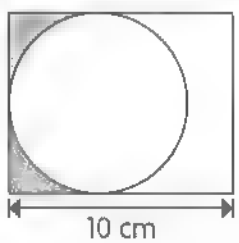
1. 72°
2. 75°
3. 80°
4. 100°



( )

(8) The figure shows a circle, touching three sides of a rectangle. The area of the rectangle is 80 cm². Find the area of the shaded part. (Take $\pi = 3.14$.)

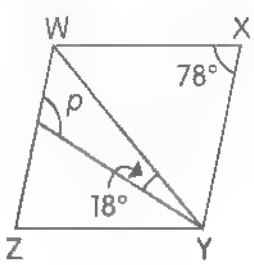
1. 6.88 cm²
2. 13.76 cm²
3. 50.24 cm²
4. 64 cm²



( )

(9) WXYZ is a rhombus. Find ∠p.

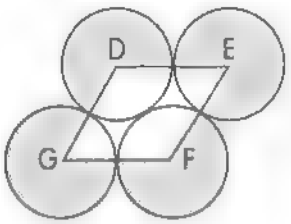
1. 51°
2. 102°
3. 111°
4. 162°



( )

*(10) The figure is made up of four identical circles of diameter 14 m. D, E, F and G are the centres of the circles. Find the shaded area. $\left(\text{Take } \pi = \frac{22}{7}.\right)$

1. 154 m²
2. 420 m²
3. 462 m²
4. 616 m²

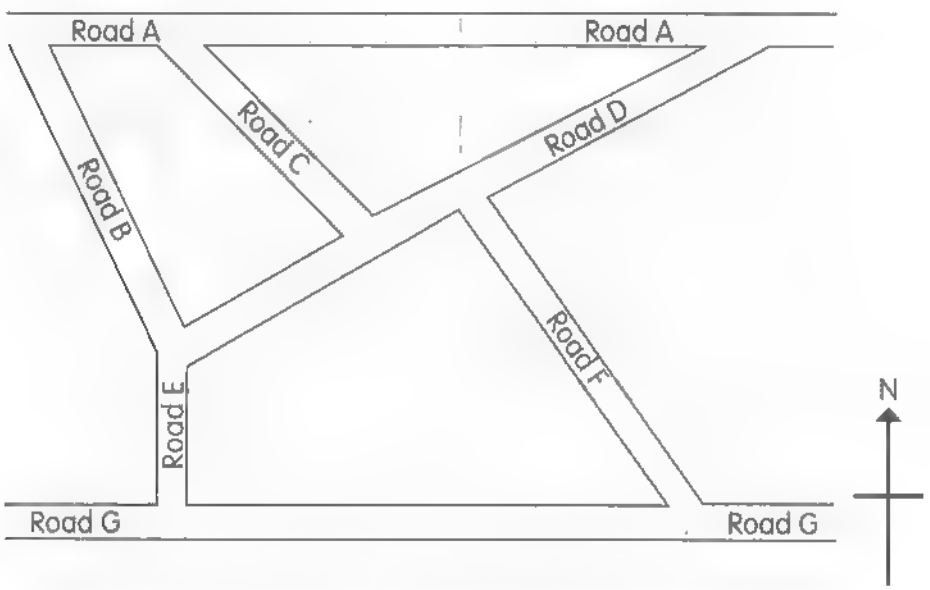


( )

Section B

Solve the problems. Show your working clearly and write your answers in the spaces provided.

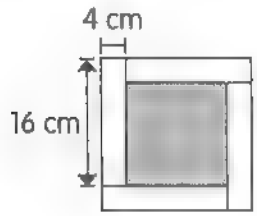
(11) The figure shows seven roads drawn on a road map in a square grid.



A car moved along Road D. After the car turned into another road, it faced north-west. Which road did it turn into?

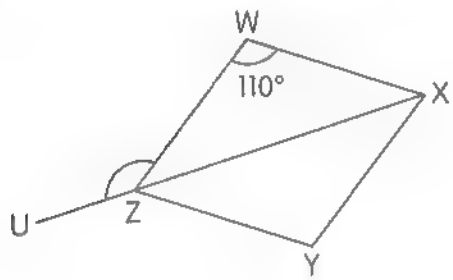
Ans: _____

(12) The figure is made up of four identical rectangles each measuring 16 cm by 4 cm. Find the area of the shaded part.



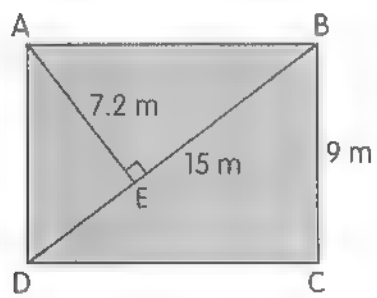
Ans: _____ cm^2

(13) WXYZ is a rhombus. UZX is a straight line. Find ∠UZW.



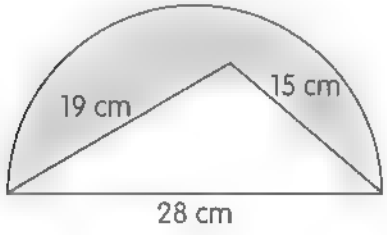
Ans: _____ °

(14) In the rectangle, AE = 7.2 m, BC = 9 m and BD = 15 m. Find the area of the rectangle.



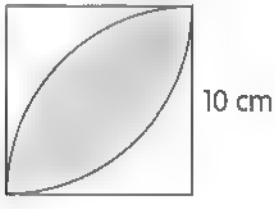
Ans: _____ m^2

(15) The figure shows a triangle inside a semicircle. Find the perimeter of the shaded part. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



Ans: _____ cm

(16) The figure is made up of two overlapping identical quarter circles. Find the area of the shaded part. Give your answer correct to 1 decimal place.

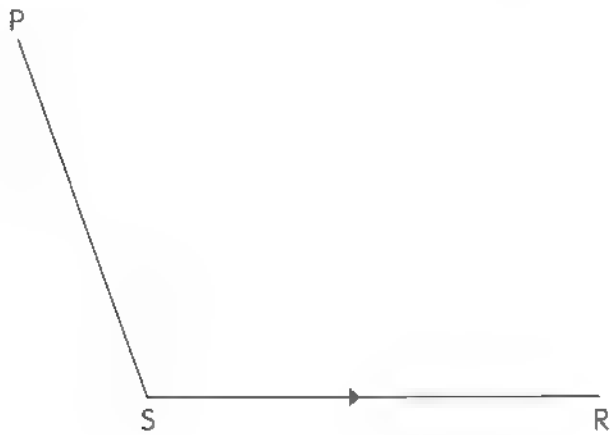


Ans: _____ cm^2

Section C

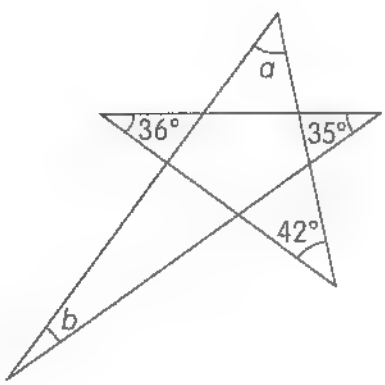
Solve the problems. Show your working clearly and write the answers in the spaces provided.

(17) Draw a trapezium PQRS in which SR // PQ and PQ = 7 cm. Measure ∠SRQ



Ans: _____

*(18) Find the sum of ∠*a* and ∠*b*.

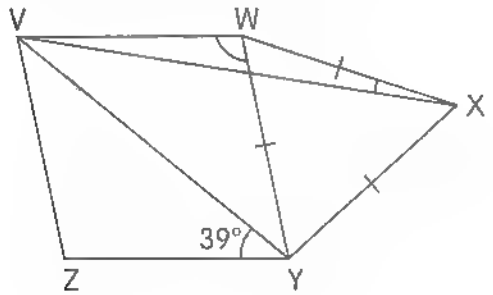


Ans: _____

*(19) VWYZ is a rhombus. WXY is equilateral triangle. $\angle VYZ = 39°$.

(a) Find $\angle VWY$.

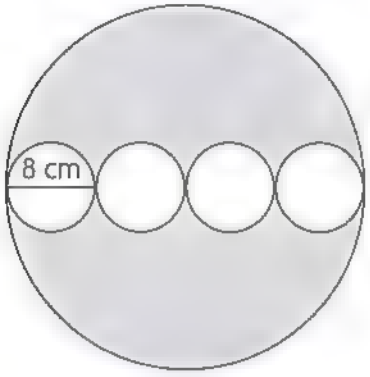
(b) Find $\angle WXV$.



Ans: (a) _____

(b) _____

(20) 4 identical circles, each of diameter 8 cm, were cut out from a large circular cardboard as shown. Find the area of the cardboard left. (Take $\pi = 3.14$.)



Ans: _____

Name: _____ Class: _____ Date: _____

Revision 1

Paper 1

Section A

For each question, four options are given. One of them is the correct answer. Make your choice (❶, ❷, ❸ or ❹) and write your answers in the brackets provided.

(1) Round 24 905 to the nearest thousand.

❶ 20 000
❷ 24 000
❸ 25 000
❹ 30 000 ( )

(2) Express 19 tenths as a decimal.

❶ 0.019
❷ 0.19
❸ 1.9
❹ 19.0 ( )

(3) Which fraction is greater than $\frac{1}{5}$?

❶ $\frac{1}{6}$
❷ $\frac{3}{8}$
❸ $\frac{3}{20}$
❹ $\frac{2}{11}$ ( )

(4) Ali worked from 8.00 a.m. to 5.00 p.m. on a Saturday. How many hours did he work?

1. 7 h
2. 8 h
3. 9 h
4. 13 h

( )

(5) The table shows the amount of money a class of pupils spent at a school funfair. How many pupils spent at least $20?

Amount Spent	Number of Pupils
$5	10
$10	9
$15	8
$20	5
$25	6

1. 5
2. 11
3. 27
4. 32

( )

(6) The figure shows a trapezium and a straight line AB. Which of the following has the same value as $\angle a + \angle b$?

1. $\angle b + \angle d$
2. $\angle c + \angle d$
3. $\angle d + \angle e$
4. $\angle d + \angle f$

( )

(7) What is the volume of a cuboid that has a square base of side 5 cm and height 15 cm?

1. 75 cm^3
2. 150 cm^3
3. 375 cm^3
4. 1125 cm^3

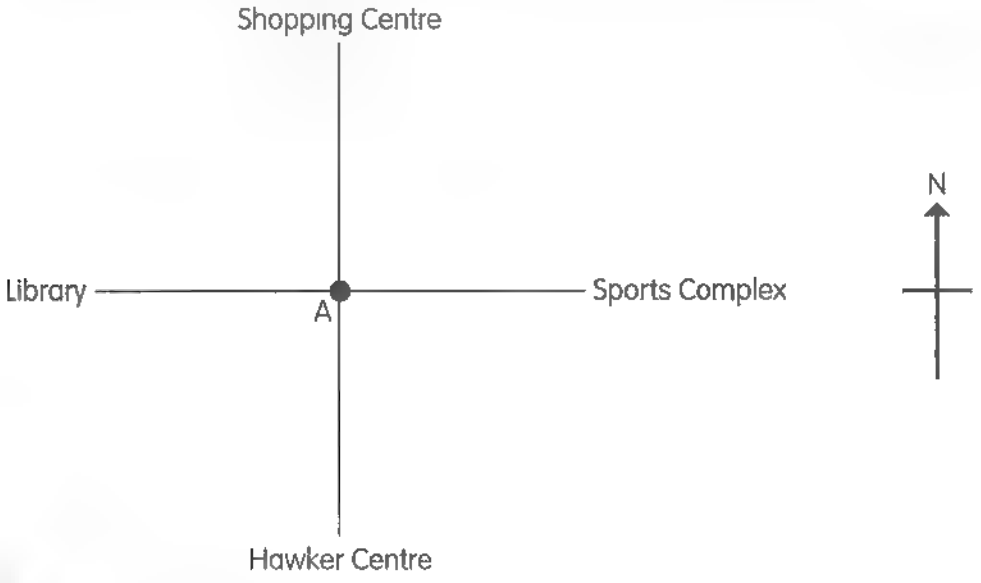
( )

(8) Gina bought a thumbdrive and 12 writing pads for \$13y. Each writing pad cost \$2. Find the cost of the thumbdrive.

1. \$(13y − 2)
2. \$(13y − 12)
3. \$(13y + 24)
4. \$(13y − 24)

( )

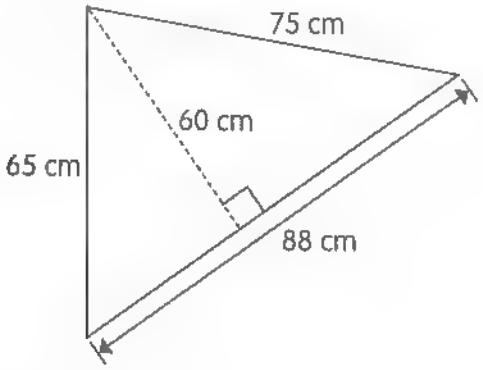
(9) Manisha is standing at Point A facing the shopping centre. She makes a $\frac{3}{4}$-turn in an anti-clockwise direction. Where will she be facing in the end?



1. Library
2. Hawker Centre
3. Sports Complex
4. Shopping Centre

( )

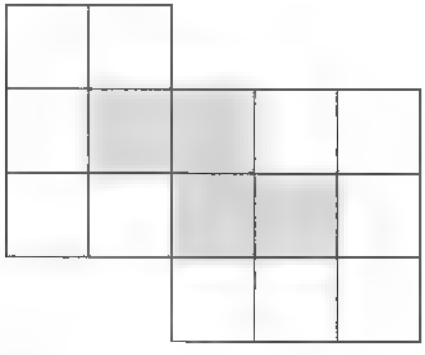
(10) What is the area of the triangle?



1. 2347.5 cm^2
2. 2640 cm^2
3. 4875 cm^2
4. 5280 cm^2

( )

(11) How many more squares must be shaded so that $\frac{4}{5}$ of the figure is shaded?



1. 1
2. 5
3. 8
4. 9

( )

(12) 78% of a number is 156. What is the number?

1. 234
2. 200
3. 156
4. 178

( )

(13) The table shows the rates a postal office charges for posting parcels to two countries.

Destination	Mass Step	Postage
Malaysia	First 100 g	$1.20
	Every additional 50 g	$1
United Kingdom	First 100 g	$2.50
	Every additional 50 g	$2

John sent a parcel weighing 120 g to Malaysia and another parcel weighing 230 g to the United Kingdom. How much did he pay altogether?

1. $2.20
2. $6.70
3. $8.50
4. $10.70

( )

(14) The number of binder clips Hakim has is $\frac{3}{8}$ of the number of paperclips he has. He has 35 more paperclips than binder clips. How many binder clips and paperclips does he have altogether?

1. 21
2. 35
3. 56
4. 77

( )

(15) Sam has stamps from Malaysia, Thailand and New Zealand. The ratio of the number of stamps from Malaysia to the number of stamps from Thailand is 3 : 2. The ratio of the number of stamps from New Zealand to the number of stamps from Thailand is 6 : 5. What fraction of Sam's stamps is from Malaysia?

1. $\frac{10}{37}$
2. $\frac{12}{37}$
3. $\frac{15}{37}$
4. $\frac{22}{37}$

( )

Section B

For questions **16** to **20**, write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

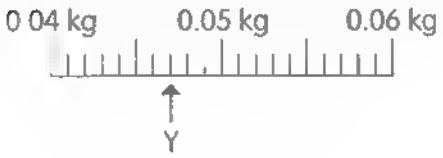
(16) Find the value of $54 - 8 \times 6 + 10$.

Ans: _____

(17) Find the value of $\frac{4}{5} \div \frac{4}{7}$.

Ans: _____

(18) What is the value of Y on the following scale?

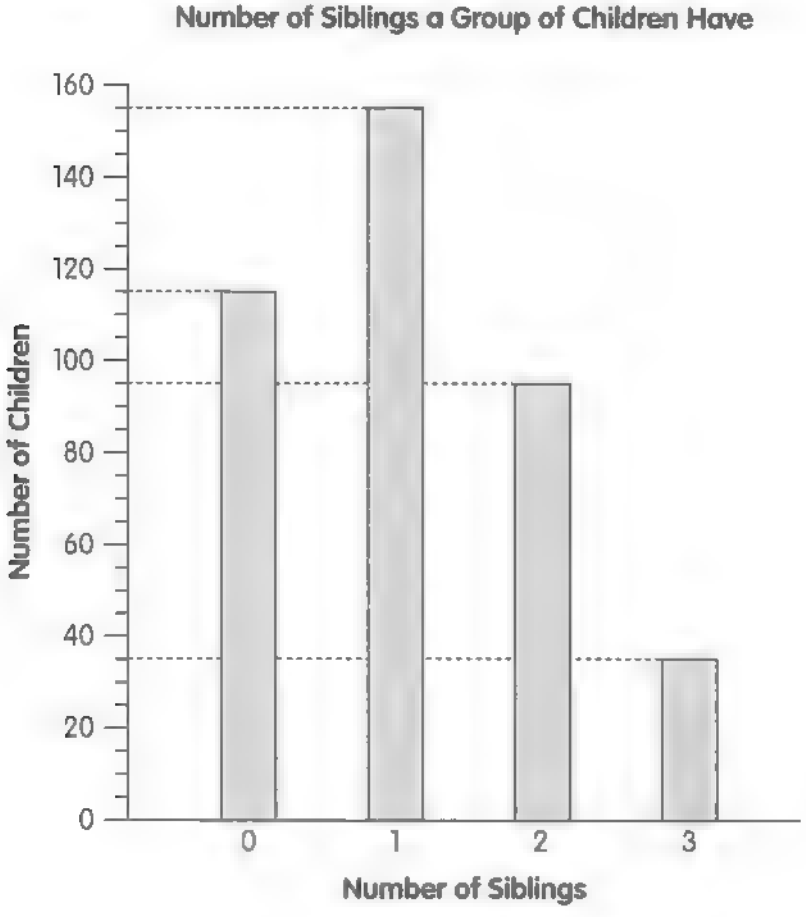


Ans: _____ kg

(19) Write 5.4 m in metres and centimetres.

Ans: _____ m _____ cm

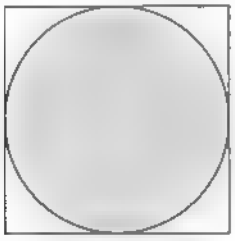
(20) The bar graph shows the number of siblings the children living in a block of flats have. How many children have more than 1 sibling?



Ans: _____

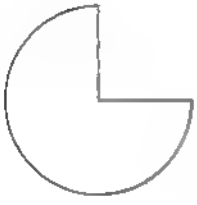
For questions **21** to **30**, show your working clearly and write your answers in the spaces provided. For questions which require units, give your answers in the units stated

(21) The figure is made up of a square and a circle. The area of the square is 81 cm^2. Find the area of the circle. (Take $\pi = 3.14$.)

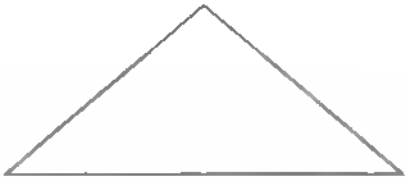


Ans: _____ cm^2

(22) Kim drew the following figures. Which of the figures are symmetrical?



A

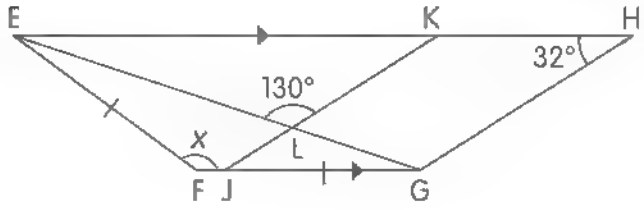


B

C

Ans: _____

(23) EFGH is a trapezium KJGH is a parallelogram. EH // FG. EF = FG. Find $\angle x$.



Ans: _____°

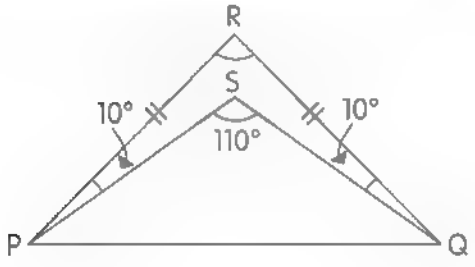
(24) Kieran and Lindsay have $140 together. Lindsay's money is 25% of the total amount of money they have. How much money does Kieran have?

Ans: $_____

(25) Simplify $8x + 11 - x + 6$.

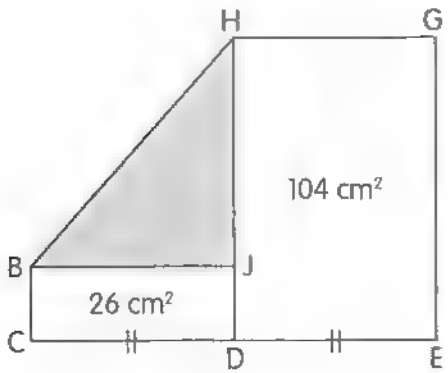
Ans: _____

*(26) PQR is an isosceles triangle. Find $\angle PRQ$.



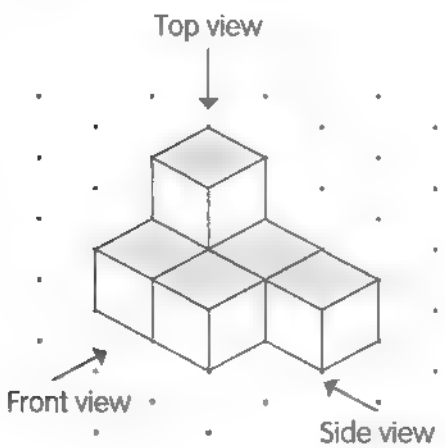
Ans: _____ °

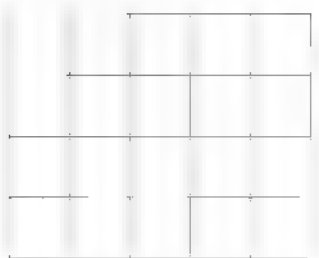
*(27) BCDJ and DEGH are rectangles. CD = DE. Find the area of Triangle BJH.



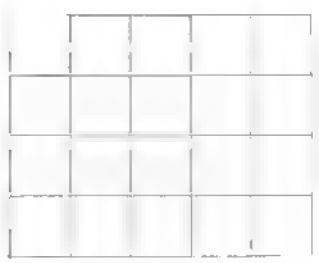
Ans: _____ cm²

(28) Draw the front view of the solid below.

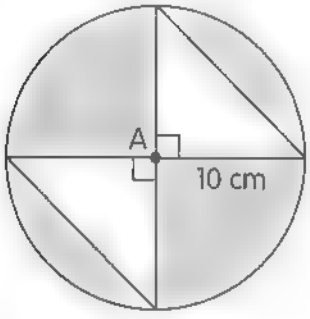




Ans:



(29) The figure is made up of a circle, with centre A, and two identical right-angled triangles. The radius of the circle is 10 cm. Find the area of the shaded part of the figure. (Take $\pi = 3.14$.)



Ans: _____ cm^2

(30) You are given five number cards.

(a) Arrange the cards to form the smallest 5-digit odd number.
(b) Arrange the cards to form the greatest 5-digit even number.

Ans: (a) _____

(b) _____

Paper 2

For questions **1** to **5**, show your working clearly and write your answers in the space provided. For questions which require units, give your answers in the units stated.

(1) At a bicycle store, there were $2y$ bicycles and 7 tricycles.
(a) How many wheels are there? Give your answer in terms of y.
(b) If $y = 12$, how many wheels are there altogether?

Ans: (a) _____

(b) _____

(2) During a sale, a shop gave a storewide discount of 20%. Mrs Tan bought a handbag for $96. What was the price of the handbag before the discount?

Ans: $_____

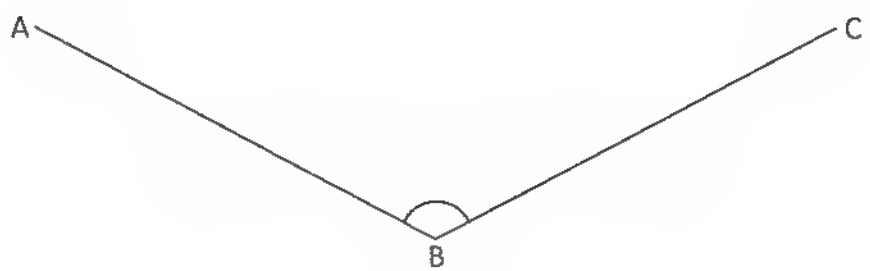
(3) A $\frac{3}{5}$-m rope was cut into 2 pieces. The shorter piece was 24 cm. What was the difference in length between the two pieces of rope?

Ans: _____ cm

*(4) Pamela found the average of some numbers to be 124.5. She realised that she had keyed in one number wrongly. Instead of keying in 153, she keyed in 135. The actual average was 129. How many numbers were there?

Ans: _____

(5) AB and BC form two sides of Rhombus ABCD.
(a) Complete the drawing of Rhombus ABCD.
(b) Measure ∠ABC.



Ans: (b) _____°

For questions **6** to **17**, show your working clearly and write your answers in the space provided. The use of an approved calculator is expected, where appropriate.

(6) Jamal had 60 more stamps than Keith at first. After Jamal gave away $\frac{1}{2}$ of his stamps and Keith gave away $\frac{1}{6}$ of his stamps, they were left with an equal number of stamps each. How many stamps did Jamal have at first?

Ans: _____

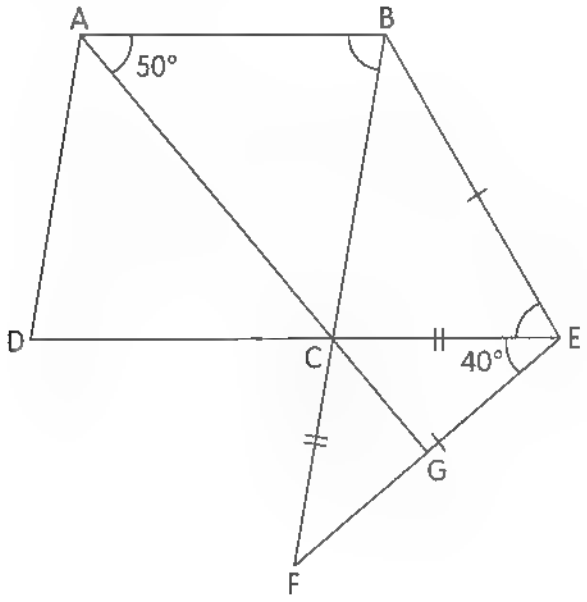
(7) A rectangular tank measuring 32 cm by 25 cm by 13 cm is $\frac{5}{8}$ filled with water
The water is poured into an empty cubical tank of edge 16 cm until it is full.
How much water is left in the rectangular tank? Give your answer in litres correct to 1 decimal place.

Ans: _____

(8) ABCD is a rhombus BEF and CEF are isosceles triangles BE = EF and CE = CF. ACG, DCE and BCF are straight lines.

(a) Find ∠ABC.

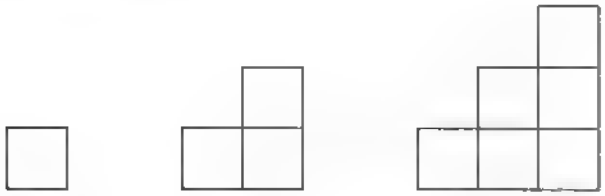
(b) Find ∠BEC.



Ans: (a) _____

(b) _____

(9) Emily uses sticks to form figures that follow a pattern. The first three figures are shown.



1st 2nd 3rd

The table shows the number of sticks used to form the figures.

Position	Number of Sticks Used
1st	4
2nd	10
3rd	18
...	...
5th	?
...	...
?	70

(a) How many sticks are needed to make the 5th figure?
(b) Find the position of the figure that is formed by 70 sticks.

Ans: (a) _____

(b) _____

(10) There was $\frac{1}{3}$ as much oil in Barrel A as in Barrel B. After 6 ℓ of oil was transferred from Barrel B to Barrel A, there were 2 times as much oil in Barrel B as in Barrel A. How many litres of oil were there in Barrel B at first?

Ans: _____

*(11) Ella has some stickers. She wants to stick an equal number of stickers on some greeting cards for her friends. If she sticks 5 stickers on each card, she will need 16 more stickers. If she sticks 4 stickers on each card, she will have 14 stickers left.

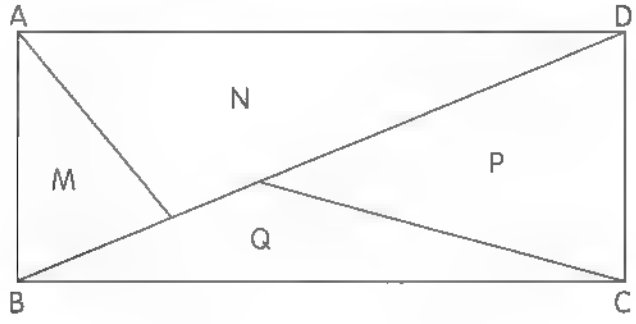
(a) How many friends will she be sending greeting cards to?

(b) How many stickers does Ella have?

Ans: (a) _____

(b) _____

*(12) The figure shows Rectangle ABCD divided into four parts. The ratio of area M to area N is 2 : 7. The ratio of area Q to area P is 1 : 2. Find the ratio of area N to area Q.

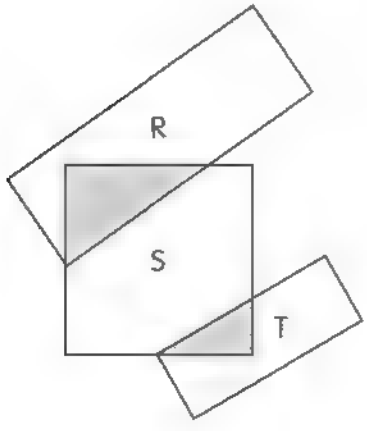


Ans: _____

(13) In a train, the ratio of the number of children to the number of adults was 2 : 3. After 8 children boarded the train, the ratio of the number of children to the number of adults became 4 : 5. How many adults were there in the train?

Ans: _____

*(14) The figure is made up of Square S and Rectangles R and T. The area of Square S is $\frac{8}{9}$ of the total area of Rectangles R and T. $\frac{1}{4}$ of Square S is shaded. $\frac{1}{4}$ of Rectangle R is shaded. $\frac{1}{6}$ of Rectangle T is shaded. Find the fraction of the figure that is shaded.



Ans: _____

*(15) Mandy and Priscilla shared a packet of stickers. At first, the number of stickers Mandy had was $\frac{1}{4}$ of the number of stickers Priscilla had. When the girls bought another 28 stickers each, the number of stickers Priscilla had was $\frac{1}{5}$ more than the number of stickers Mandy had. How many stickers were there in the packet?

Ans: _____

*(16) A sum of money raised in a show was distributed to Charities A, B and C. Charity A received $\frac{1}{3}$ of the total amount Charities B and C received. Charity C received $\frac{1}{4}$ of the total amount Charities A and B received.

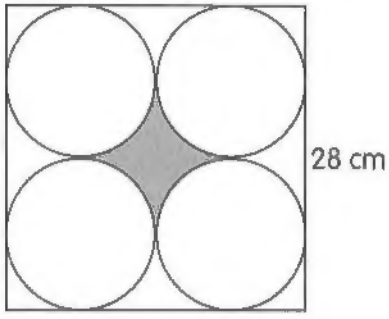
(a) What fraction of the total amount of money did Charity B receive?

(b) Charity B received $88 000. How much money was raised in the show?

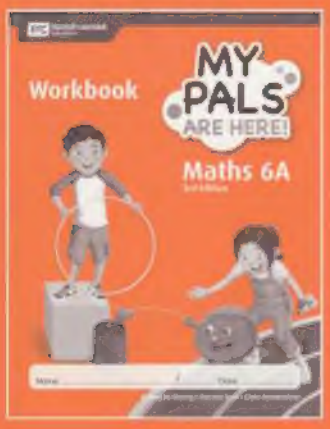
Ans: (a) _____

(b) _____

*(17) The figure shows four identical circles in a square of side 28 cm. Find the area of the shaded part. $\left(\text{Take } \pi = \frac{22}{7}.\right)$



Ans: _____



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